

# DIGITAL Server Rackmount Installation Guide

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Digital Equipment Corporation

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*DIGITAL Server Rackmount Installation Guide*

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# Preface **P**

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## **Introduction**

This guide describes how to unpack the rackmount. It details the initial setup of the rackmount and demonstrates how to install various hardware needed to create a variety of rackmount server configurations. Information about installing various server components are also included in this guide. The information presented will help to familiarize you with all aspects of your rack and provide a reference tool for questions you might have in the future.

## **Related Material**

*DIGITAL Server Maker* software is available to help design your server rackmount system. Call DIGITAL or contact your local distributor for more information about this service.

## **Latest Product Information and Updates**

Technical support and product information are available on the Internet.

For product information, use the address:

<http://www.windows.digital.com>

For technical support, use the address:

<http://www.windows.digital.com/support/support.asp>

## Special Notices

Three kinds of special notices are used in this *Installation Guide* to emphasize specific information.



**WARNING:** Indicates the presence of a hazard that can cause personal injury if the hazard is not avoided.



**CAUTION:** Indicates the presence of a hazard that might cause damage to hardware.



**NOTES:** Are used to provide additional information.

# Unpacking and Moving the Rackmount

---

# 1

## Before You Begin

Select a suitable area for assembly and use. Make sure your workspace:

- Is free from excessive heat, dust, and direct sunlight
- Allows at least 30 inches of clearance at the rear of the unit and 60 inches at the front of the unit
- Is in accordance with local and regional electrical regulations governing the installation of Information Technology Equipment by licensed electricians

If you do not wish to configure or install your servers into the rackmount yourself, contact DIGITAL Customer Service or your authorized service provider.



**WARNING:** Never move a fully loaded rackmount. Servers and related components must be installed at the final server installation site.

## Dimensions

Description	800mm x 42U	900mm x 42U
Width	61 cm (24 in.)	61 cm (24 in.)
Height	213.4 cm (84 in.)	213.4 cm (84 in.)
Depth	81.3 cm (32 in.)	90 cm (35.43 in.)
Weight (with four shelves)	179.6 kg (396 lb)	
Weight (with two shelves)		159.1 kg (350 lb)

## Rackmounts Available

There are two rackmounts available:

- 42U 800mm
- 42U 900mm



**NOTE:** Although the rackmounts vary in depth, the assembly is the same for each.

## Torque Specifications



**CAUTION:** Make sure that the shelf mounting bolts are tightened to a torque value of 4.2 N·m (38 in.-lbs) prior to loading shelves to prevent slippage. The shelf capacity is 40 kg (90 lbs) using this torque value.

Description	Imperial	S.I.
U-nut for shelves	38 in.-lbs	4.2 N·m
M5	35 in.-lbs	4.0 N·m
M6	60 in.-lbs	6.9 N·m

## Unpacking

The following sections describe where and how to unpack the rackmount.

### Where to Unpack the Rackmount

Where you unpack the rackmount is dependent upon whether or not your facility has adequate door clearance to move it to the site without tilting it. If your facility has adequate door clearance, use a forklift to move the rackmount to the site before removing the packing material and rolling it off the pallet. If not, it is recommended that you remove the packing material and then roll it off the pallet at the receiving dock.

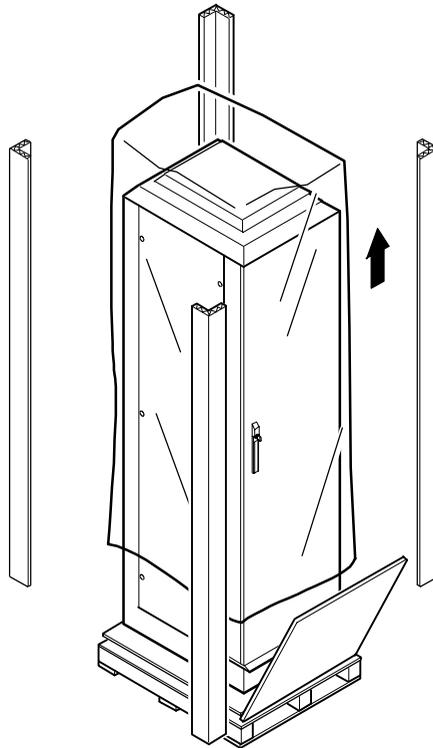


**WARNING:** Use extreme care when lifting, unpacking, and moving the rackmount. Due to its height and weight, appropriate equipment is required to lift, unpack, and move it. Failure to use sufficient man power might violate certain safety regulations and can result in severe personal injury or equipment damage.

## How to Unpack the Rackmount

To unpack the rackmount:

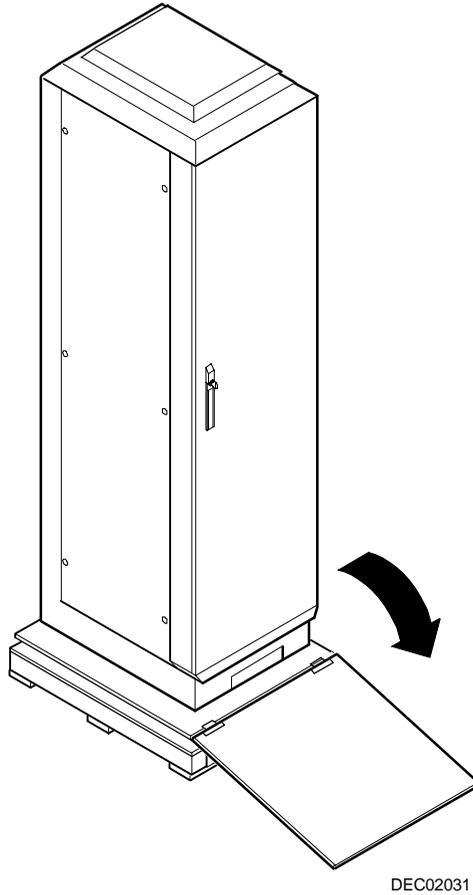
1. Remove the four corrugated corners, and then the plastic bag from the rackmount (see Figure 1-1). We recommend saving the packing material in case the unit needs to be repacked at a later date.
2. The 800mm rackmount is banded to the skid. The bands must be cut to remove the rackmount from the skid. The 900mm rackmount is bolted to the skid. The bolts must be removed prior to removing the rackmount from the skid.



DEC02030

**Figure 1-1. Cutting the Bands and Removing the Plastic Bag**

3. Pull down the hinged ramp and place it on the floor (see Figure 1-2).



DEC02031

**Figure 1-2. Pulling Down the Ramp**

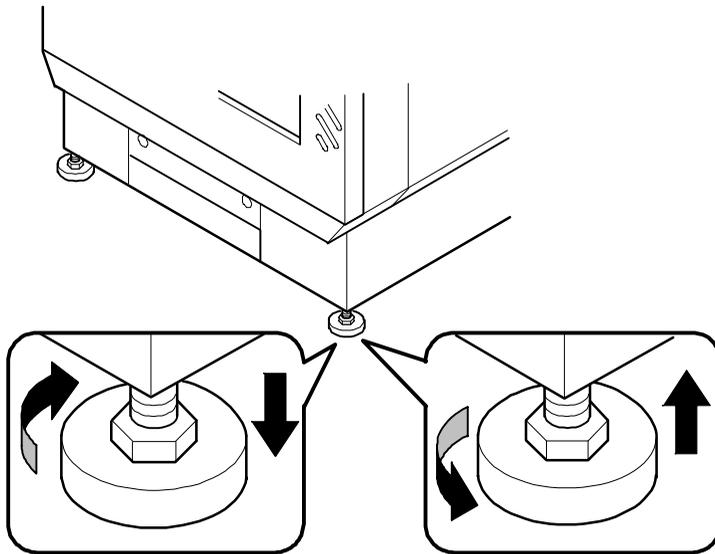
## Moving the Rackmount

The following sections describe how to move the rackmount, raise and lower the leveling feet, and tilt the rackmount.

### Moving the Rackmount to the Final Site

The rackmount is equipped with rollers so it can be easily moved to the site. However, before moving the rackmount you must first raise the leveling feet to allow free movement of the rollers. To raise the feet:

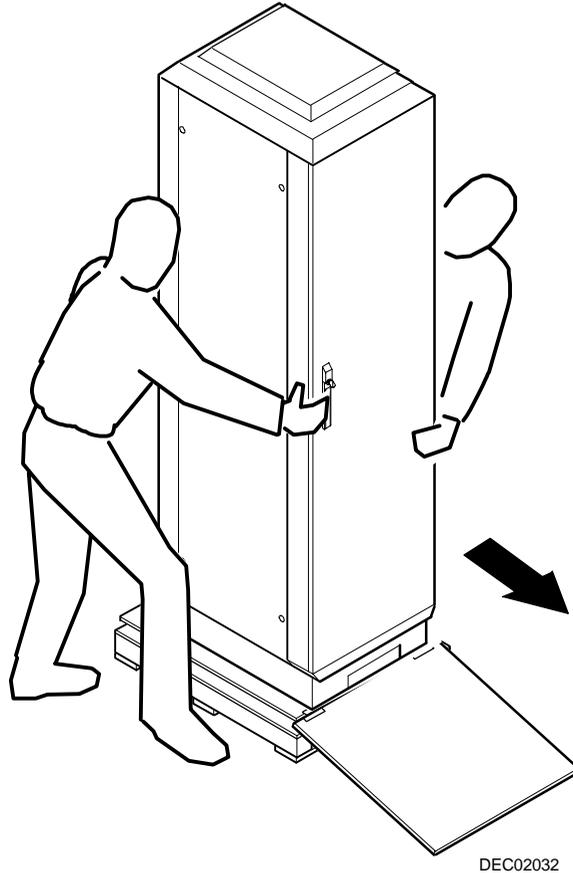
1. Using a wrench, raise the leveling feet (turn the leveling feet counterclockwise).



DEC01114

**Figure 1-3. Raising or Lowering the Leveling Feet**

2. Using at least two people, carefully roll the rackmount off the pallet (see Figure 1-4).



DEC02032

**Figure 1-4. Rolling the Rackmount Off the Pallet**

## Unpacking and Moving the Rackmount

3. Roll the rackmount to the site.
4. Using a wrench, lower the leveling feet (turn the leveling feet clockwise).



**CAUTION:** Make sure the rackmount is level and that its full weight rests on the leveling feet and not the rollers.

## Tilting the Rackmount

If the rackmount must be tilted to gain access through a door, it is recommended that it be tilted backward to keep the shelves from sliding against the front door.



**WARNING:** If the unit is going to be tilted, it must be empty except for the shelves. To prevent the shelves from hitting the front door, tilt the unit backward.

Use extreme care when tilting the rackmount. Due to its height and weight, sufficient man power is required to tilt it. Failure to use sufficient man power might violate certain safety regulations and can result in severe personal injury or equipment damage.

# Typical Rackmount Configurations

---

# 2

## Introduction

This chapter provides typical rackmount configurations for the complete line of DIGITAL Servers. These typical configurations portray basic rackmount and shelf rackmount configurations. Your specific configuration might differ.



**NOTE:** All measurements in the following sections are in units of “U.” “U” is an empirical measurement equal to 1.75 inches (44.45mm). When configuring your rackmount, the total number of installed components (servers, monitor, shelves, etc.) cannot exceed 42U.

## “U” Requirements

Component	“U” Measurement
DIGITAL Server Rackmount	42
DIGITAL Server 3100/3200	14
DIGITAL Server 3100R/3200R	5
DIGITAL Server 3300R	5
DIGITAL Server 5100/5200	8.5
DIGITAL Server 7100	8.5
DIGITAL Server 7100R	7
DIGITAL Prioris XL Server	4.5
DIGITAL Prioris LX Server	4
BA356 storage cabinet	4
RAID 310 storage cabinet	5.5
RAID 450 storage cabinet	17
14-inch monitor	9
15-inch monitor	9.5
Universal shelf	1 <sup>(1)</sup>
Console	1.5
Keyboard shelf (900mm)	1

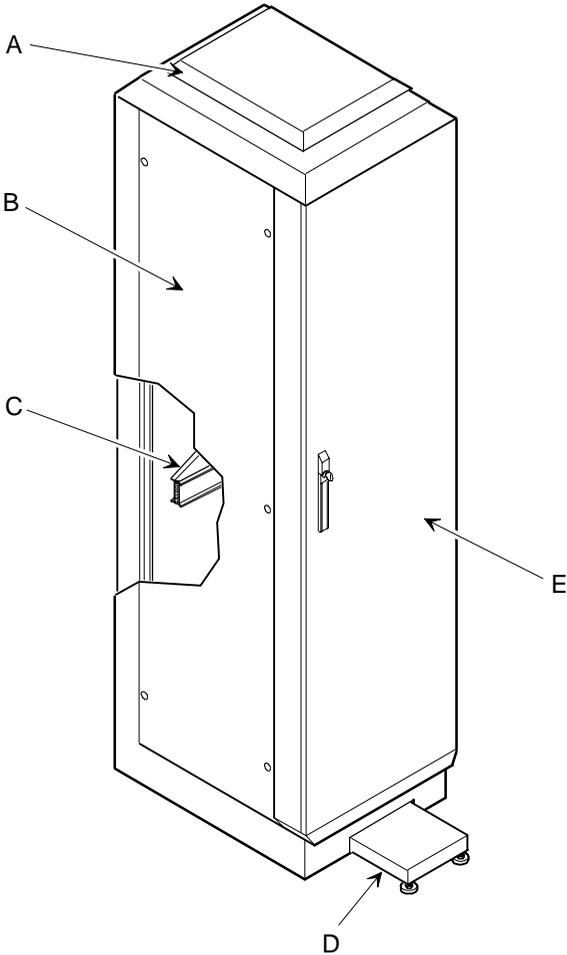
<sup>(1)</sup> The universal shelf is 1U high. However, it includes a cable management arm that rises 2.2U above the top of the shelf. If a device mounted on the shelf measures less than 2.2U (keyboard, mouse, etc.), then a measurement of 3.5U must be allocated for the shelf and the device.

## DIGITAL Server Rackmount Components

The following sections describe the rackmount components, base configurations and rackmount options. A detailed system and options list, with part numbers, for the rackmount family is located in Appendix A.

<b>Figure Legend</b>	<b>Component</b>
A	Fan tray
B	Side panels (2)
C	Cable management arms (4 with the RN/RA configuration)
D	Front stabilizer
E	Front and rear doors

Typical Rackmount Configurations



DEC02058

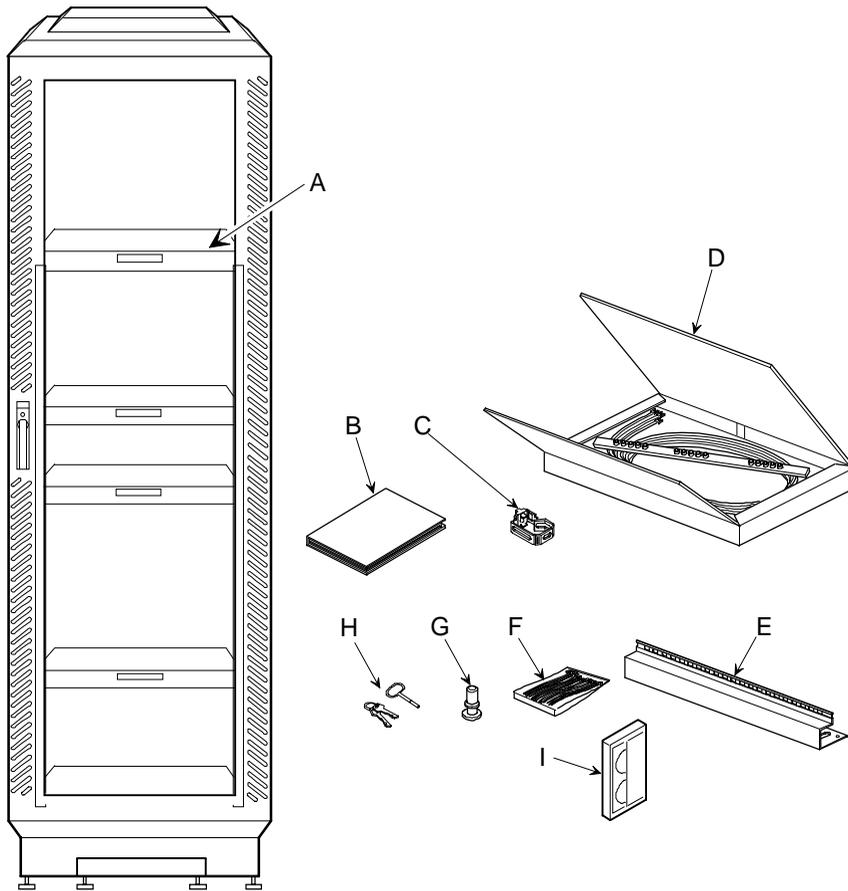
**Figure 2-1. Basic Rackmount Components**

## 42U x 800mm Base Configuration with Shelving

The following parts are included in the base configuration kit.

Figure Legend	Component
A	Shelves (4)
B	Documentation
C	Cable rings (10)
D	Grounding kit
E	19 inch mounting angles (four 12U and four 4U)
F	Cable ties
G	Posts (20)
H	Keys
I	Video (for assembly)

# Typical Rackmount Configurations



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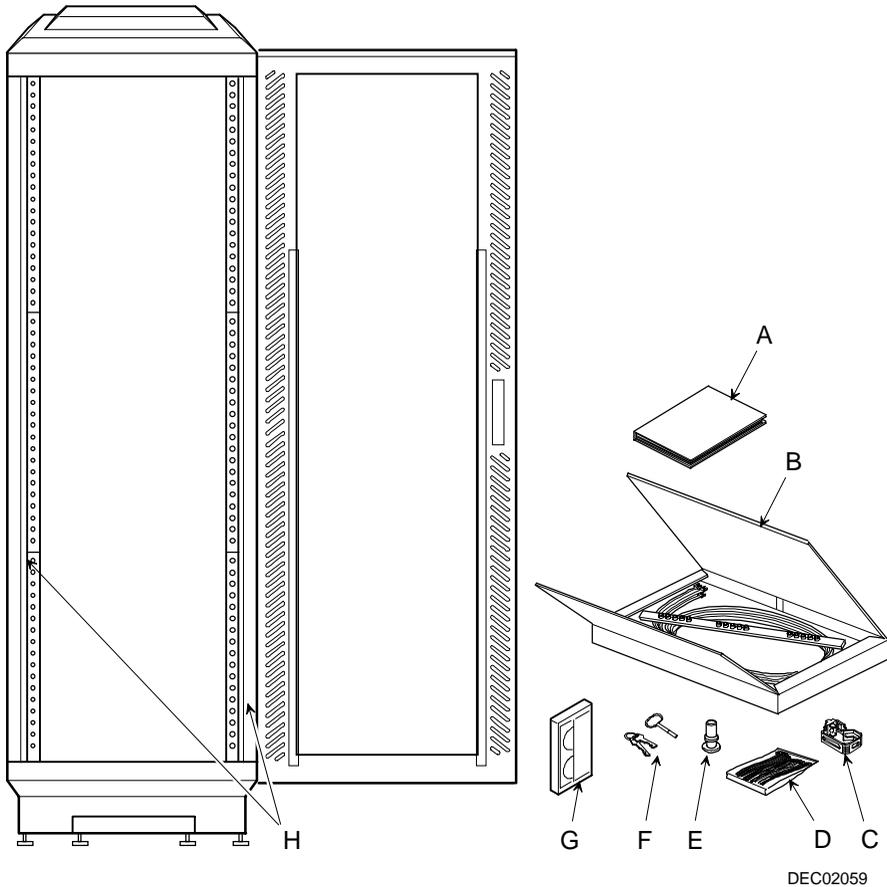
**Figure 2-2. 42U x 800mm Base Configuration with Shelving**

## 42U x 900mm Base Configuration

The following parts are included in the base configuration kit (FR-PCSRA-RC/RD).

Figure Legend	Component
A	Documentation
B	Grounding kit
C	Cable rings (10)
D	Cable ties
E	Posts (12)
F	Keys
G	Video (for assembly)
H	Mounting angles, 12 (14U) total: three for each corner

# Typical Rackmount Configurations



**Figure 2-3. 42U x 900mm Base Configuration**

## Maximum Server Configuration

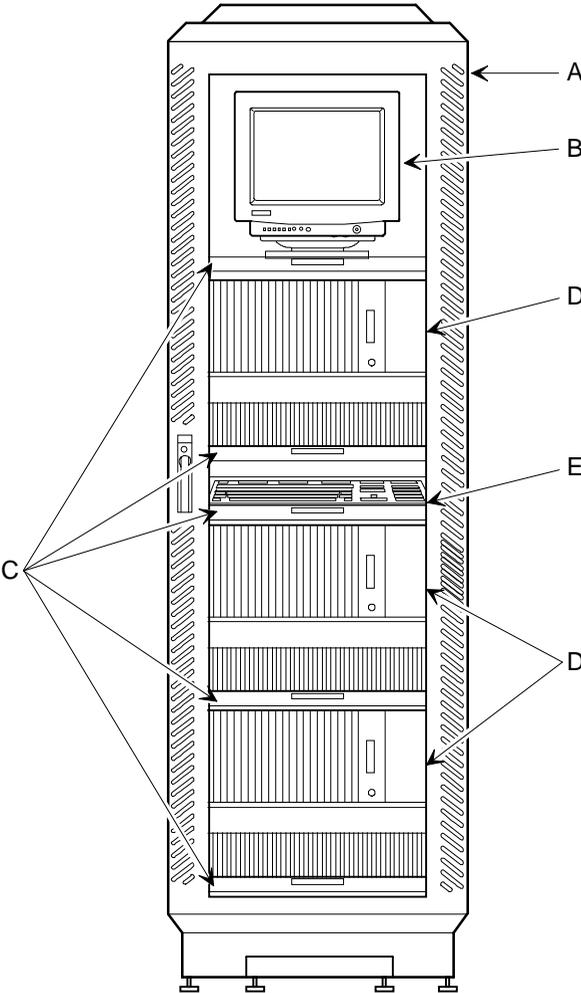
<b>Server Type</b>	<b>Without Monitor, Keyboard, and Console in Rackmount</b>	<b>With Monitor, Keyboard, and Console in Rackmount</b>
DIGITAL Server 3100/3200	4	4
DIGITAL Server 3100R/3200R	8	6
DIGITAL Server 3300R	8	6
DIGITAL Server 5100/5200	4	3
DIGITAL Server 7100	4	3
DIGITAL Server 7100R	6	4
DIGITAL Prioris XL Server	7	5
DIGITAL Prioris LX Server	8	5

## DIGITAL Server 5100/5200 and 7100

Figure 2-4 shows a typical rackmount configuration using three DIGITAL Servers, a monitor, console, keyboard, and mouse. The following table identifies each part.

<b>Figure Legend</b>	<b>Component</b>	<b>Dimension</b>
A	DIGITAL Server Rackmount	42U
B	14-inch monitor	9U (may differ)
C	Universal shelf (5)	1U
D	DIGITAL Server 5100/5200 and 7100 (3)	8.5U
E	DIGITAL Server keyboard and console	1.5U

Typical Rackmount Configurations



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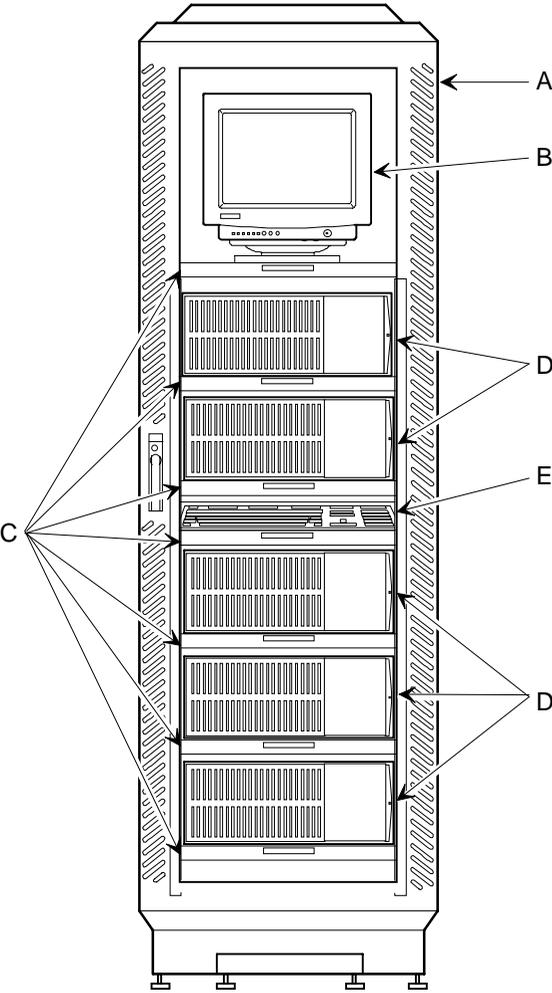
Figure 2-4. Typical DIGITAL Server 5100/5200 and 7100 Rackmount Configuration

## DIGITAL Prioris XL Server

Figure 2-5 shows a typical rackmount configuration using five DIGITAL Prioris XL servers, a monitor, console, keyboard, and mouse. The following table identifies each part.

<b>Figure Legend</b>	<b>Component</b>	<b>Dimension</b>
A	DIGITAL Server Rackmount	42U
B	15-inch monitor	9.5U (may differ)
C	Universal shelf (7)	1U
D	DIGITAL Prioris XL Server (5)	4.5U
E	DIGITAL Server keyboard and console	1.5U

Typical Rackmount Configurations



DEC01117-3

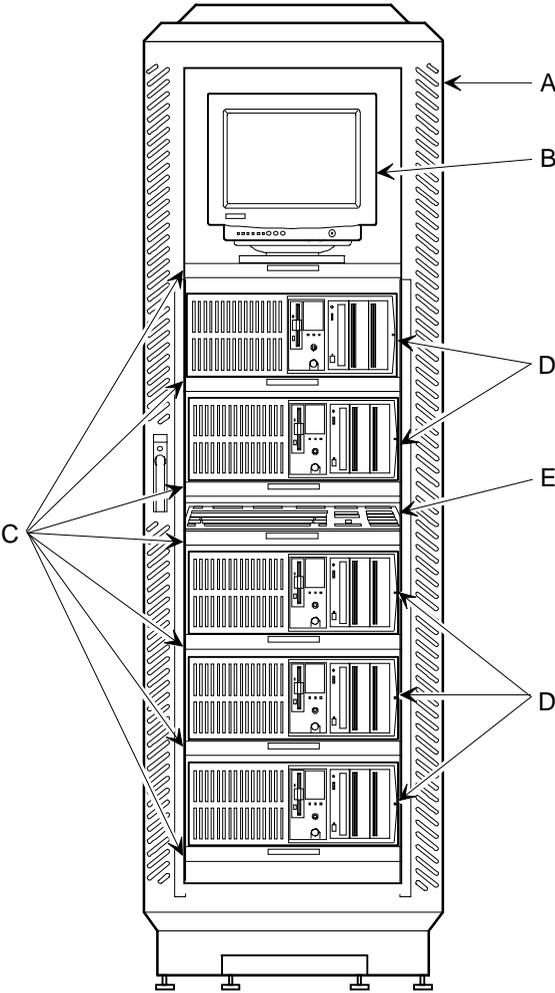
Figure 2-5. Typical DIGITAL Prioris XL Server Rackmount Configuration

## DIGITAL Prioris LX Server

Figure 2-6 shows a typical rackmount configuration using five DIGITAL Prioris LX servers, a monitor, console, keyboard, and mouse. The following table identifies each part.

<b>Figure Legend</b>	<b>Component</b>	<b>Dimension</b>
A	DIGITAL Server Rackmount	42U
B	15-inch monitor	9.5U (may differ)
C	Universal shelf (7)	1U
D	DIGITAL Prioris LX Server (5)	4U
E	DIGITAL Server keyboard and console	1.5U

Typical Rackmount Configurations



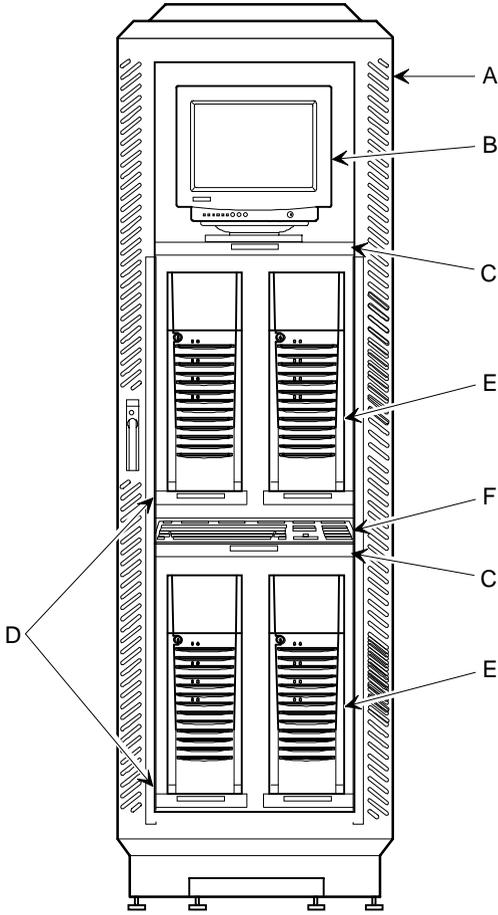
DEC01116-3

Figure 2-6. Typical DIGITAL Priors LX Server Rackmount Configuration

## DIGITAL Server 3100/3200

Figure 2-7 shows a typical rackmount configuration using four DIGITAL Servers, a monitor, console, keyboard, and mouse. The following table identifies each part.

<b>Figure Legend</b>	<b>Component</b>	<b>Dimension</b>
A	DIGITAL Server Rackmount	42U
B	15-inch monitor	9.5U (may differ)
C	Universal shelf (2)	1U
D	Split shelf	1U
E	DIGITAL Server 3100/3200 (4)	4U
F	DIGITAL Server keyboard and console	1.5U



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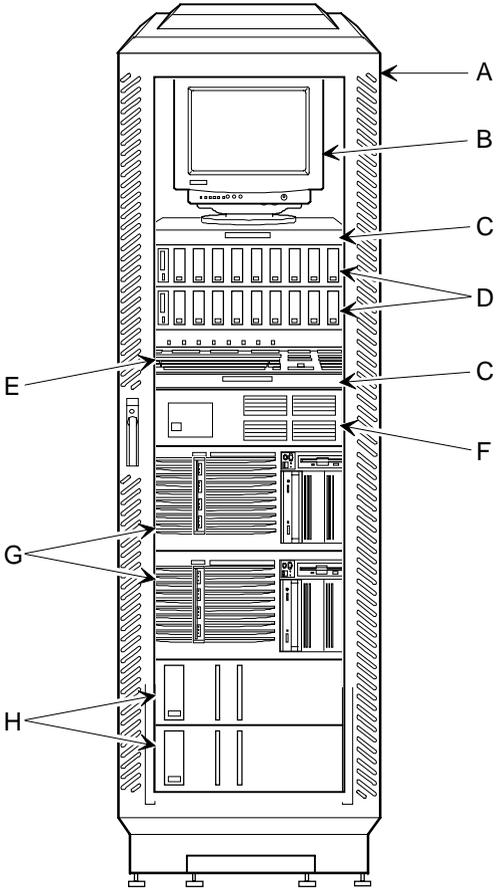
Figure 2-7. Typical DIGITAL Server 3100/3200 Rackmount Configuration

## DIGITAL Server 3100R/3200R and the 3300R

Figure 2-8 shows a typical rackmount configuration using two DIGITAL Servers, a monitor, console, keyboard, mouse, tape backup, disk storage array, and an optional Uninterruptible Power Supply (UPS). The following table identifies each part.

<b>Figure Legend</b>	<b>Component</b>	<b>Dimension</b>
A	DIGITAL Server Rackmount	42U
B	15-inch monitor	9.5U (may differ)
C	Universal shelf (2)	1U
D	Disk storage array (2)	4U
E	DIGITAL Server keyboard and console	1.5U
F	Tape backup (2)	5U
G	DIGITAL Server 3100R/3200R and the 3300R (2)	5U
H	UPS (2)	3U

Typical Rackmount Configurations



DEC02065-2

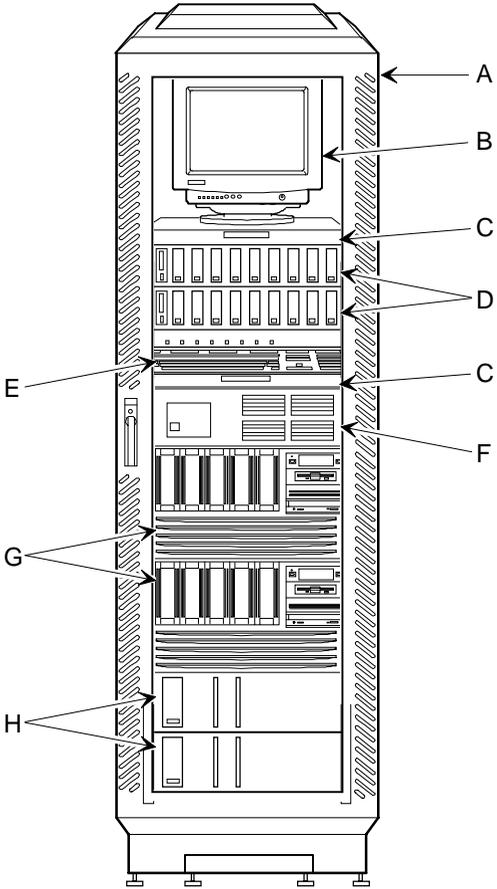
Figure 2-8. Typical DIGITAL Server 3100R/3200R and the 3300R Rackmount Configuration

## DIGITAL Server 7100R

Figure 2-9 shows a typical rackmount configuration using two DIGITAL Servers, a monitor, console, keyboard, mouse, tape backup, disk storage array, and an optional Uninterruptible Power Supply (UPS). The following table identifies each part.

<b>Figure Legend</b>	<b>Component</b>	<b>Dimension</b>
A	DIGITAL Server Rackmount	42U
B	15-inch monitor	9.5U (may differ)
C	Universal shelf (2)	1U
D	Disk storage array (2)	4U
E	DIGITAL Server keyboard and console	1.5U
F	Tape backup (2)	5U
G	DIGITAL Server 7100R (2)	7U
H	UPS (2)	3U

Typical Rackmount Configurations



DEC02068-2

Figure 2-9. Typical DIGITAL Server 7100R Rackmount Configuration

# Preparing the Rackmount

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# 3

## Introduction

This chapter describes how to open the rackmount's front and rear doors, remove side panels, adjust shelves, and install shelves as required.

## Required Tools

- Medium Phillips screwdriver
- Medium slotted (flat-head) screwdriver
- Adjustable wrench
- Hammer (Place a piece of wood against any striking surface to protect the part from denting.)
- Leveling tool
- Torque wrench/driver

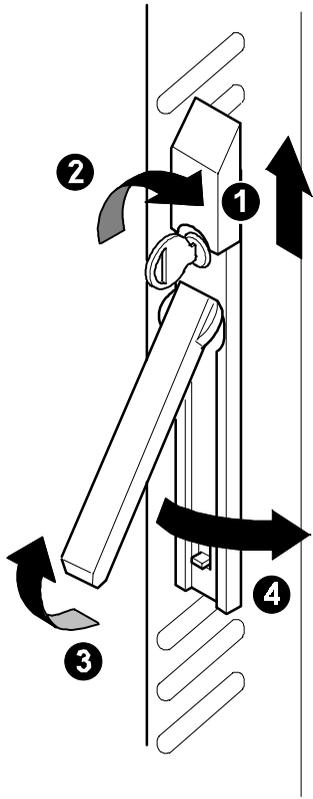
## Unlocking the Rackmount Front and Rear Doors

To open the front and rear door of the rackmount unit:

1. Push the slide unit up (1, Figure 3-1).
2. Insert the key and turn it clockwise (2, Figure 3-1).
3. Remove the key and press the key button. The door handle pops up.
4. Swing the door handle to the right (3, Figure 3-1).



**NOTE:** Once the door is unlocked, you can open the door by pushing the handle key button. See Figure 3-1 for the location of the key button.



DEC01118

**Figure 3-1. Opening the Rackmount Front and Rear Door**

## Removing the Rackmount Side Panels



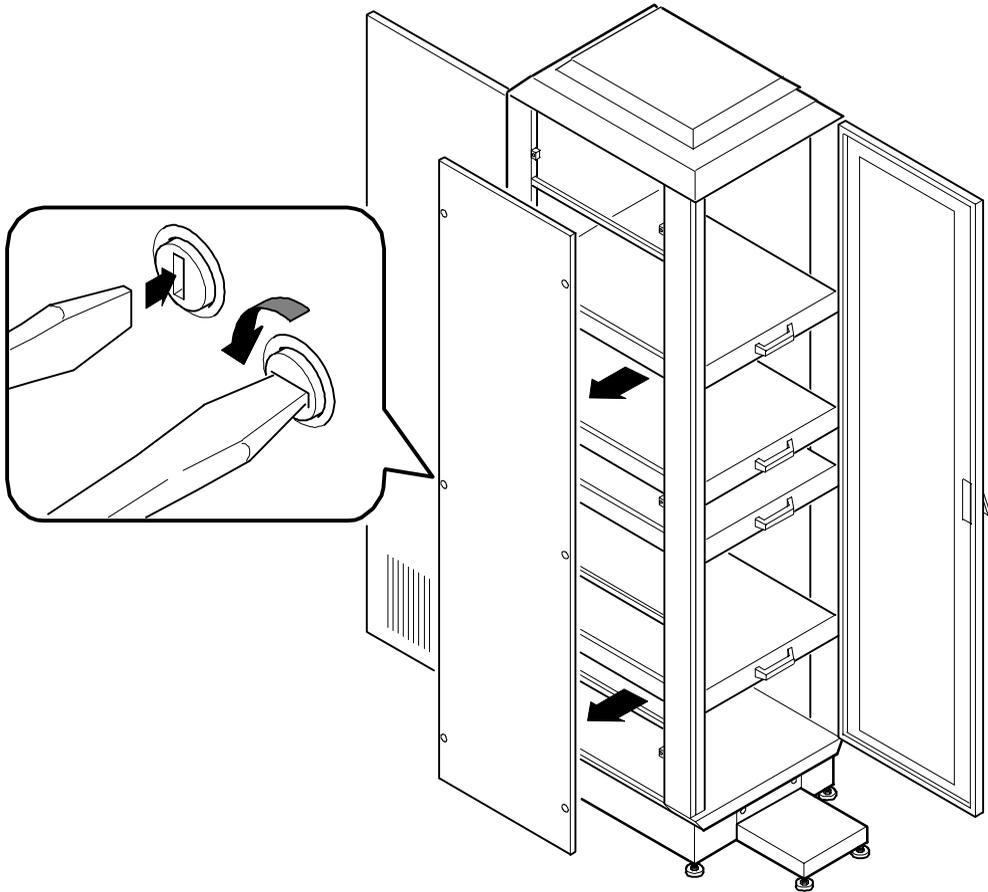
**WARNING:** Be extremely careful when removing the side panels, especially if you have components mounted in the rackmount. Removing the side panels causes the rackmount to lose some structural integrity which can result in severe personal injury or equipment damage.



**NOTE:** You might find it easier to remove the side panels before you adjust the shelves.

To remove the side panels (see Figure 3-2):

1. Pull out the stabilizer at the bottom center of the base and adjust the leveling feet until the unit is level.
2. Open the front and rear doors.
3. With a slotted screwdriver, turn the three captive screws on the left side of the panel 90° counterclockwise.
4. With a slotted screwdriver, turn the three captive screws on the right side of the panel 90° clockwise.
5. Lift the side panel up and away from the rackmount.



DEC01120

**Figure 3-2. Removing the Rackmount Side Panels**

## Adding Side Panel Locks

The side panels have six captive screw retainers which hold the panels to the cabinet. Side panel key locks allow you to make your cabinet more secure. Two side panel key locks are used for each panel.



**NOTE:** Put one lock on each side of the cabinet panel.

## Removing the Standard Side Panel Retainer

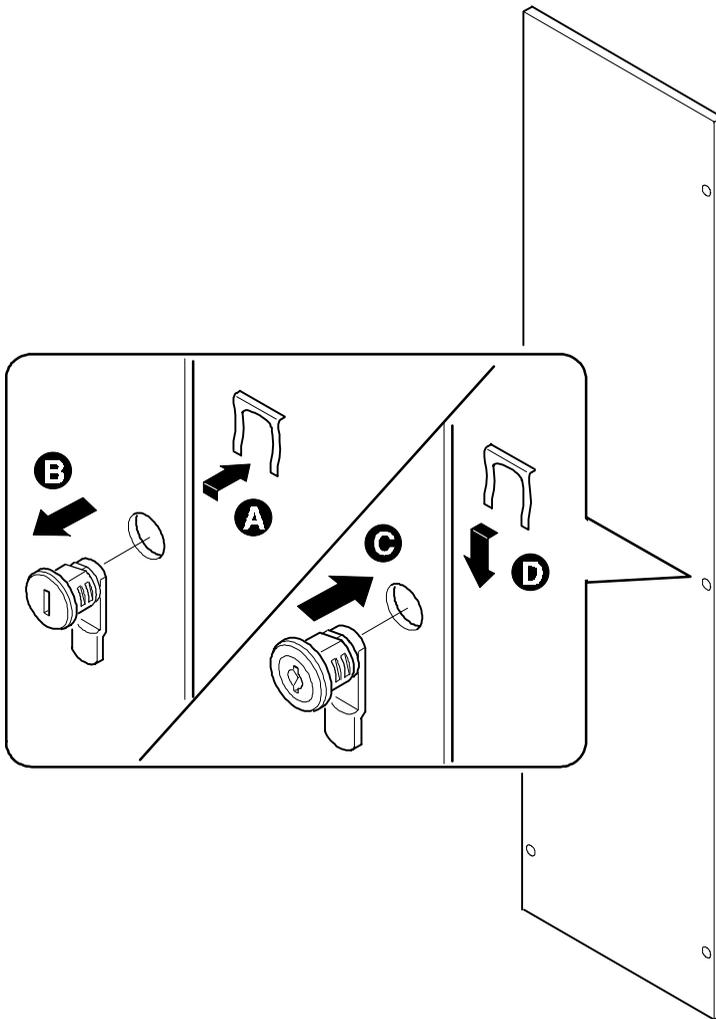
Use the following procedure to remove the standard side panel retainer:

1. After the side panel door has been opened, remove the spring clip from the standard side panel retainer by pulling up (A, Figure 3-3).
2. Pull the retainer out of the panel (B, Figure 3-3).

## Adding the Side Panel Lock

Use the following procedure to add a side panel key lock:

1. Push the new side panel key lock into the hole (C, Figure 3-3).
2. Push the spring clip over the two grooves on the back of the lock (D, Figure 3-3).
3. To operate, turn the key 90° to either the left or right, depending on which side of the panel the lock is on.



DEC02033

**Figure 3-3. Adding a Side Panel Lock**

## Installing Universal Shelves

To install a universal shelf:

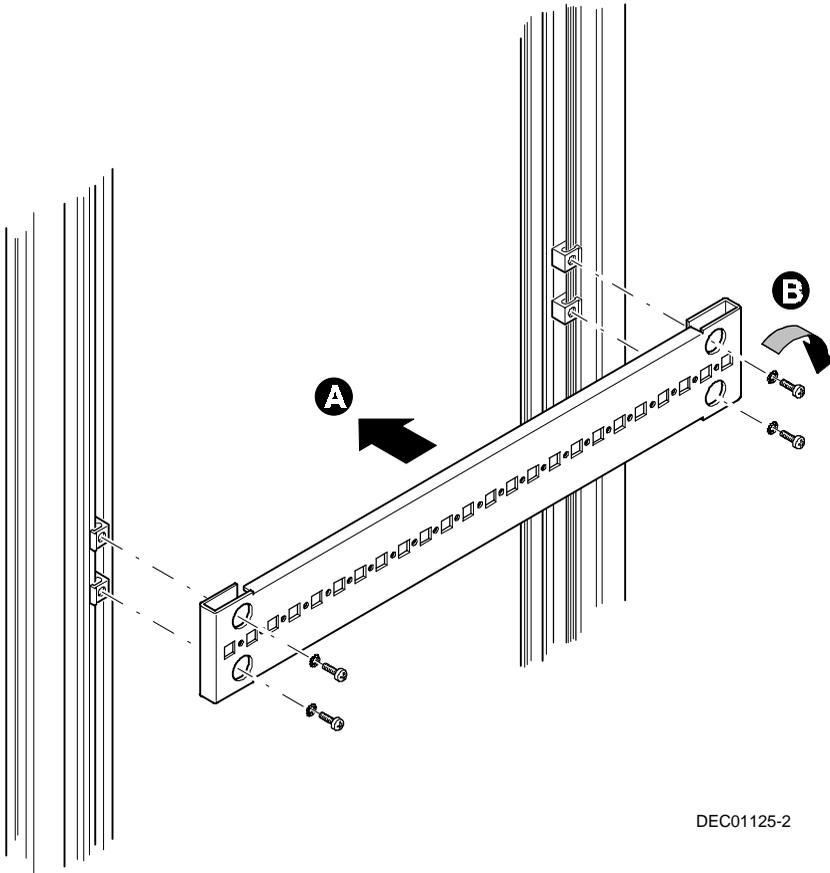
1. Choose the correct bracket for your rackmount. There are two bracket sizes supplied, a shorter one for the 800mm rackmount and a longer one for the 900mm rackmount.
2. Open the front and rear doors.
3. Remove the side panels.
4. Install eight U-nuts (two each at each end of the two side rails) onto the rackmount frame.

It is a good idea to place the U-nuts in the approximate area where you want to install the shelf. Also, tighten the screw holding the U-nut until it stays in place, yet is still loose enough to move with your hand.

5. Perform the following to attach the shelf support brackets (Figure 3-4).
  - a. Align the shelf support bracket to the U-nut holes (A, Figure 3-4).
  - b. Insert and turn the four screws clockwise and tighten (B, Figure 3-4).



**NOTE:** Use a leveling device on the shelf support bracket to make sure the shelf support bracket is at the same height in the rear as in the front. Also, make sure that the two sides are at the same height by placing a piece of wood (2 x 4 or equivalent) from the left side to the right side of the rackmount and then by placing a level device on the piece of wood.

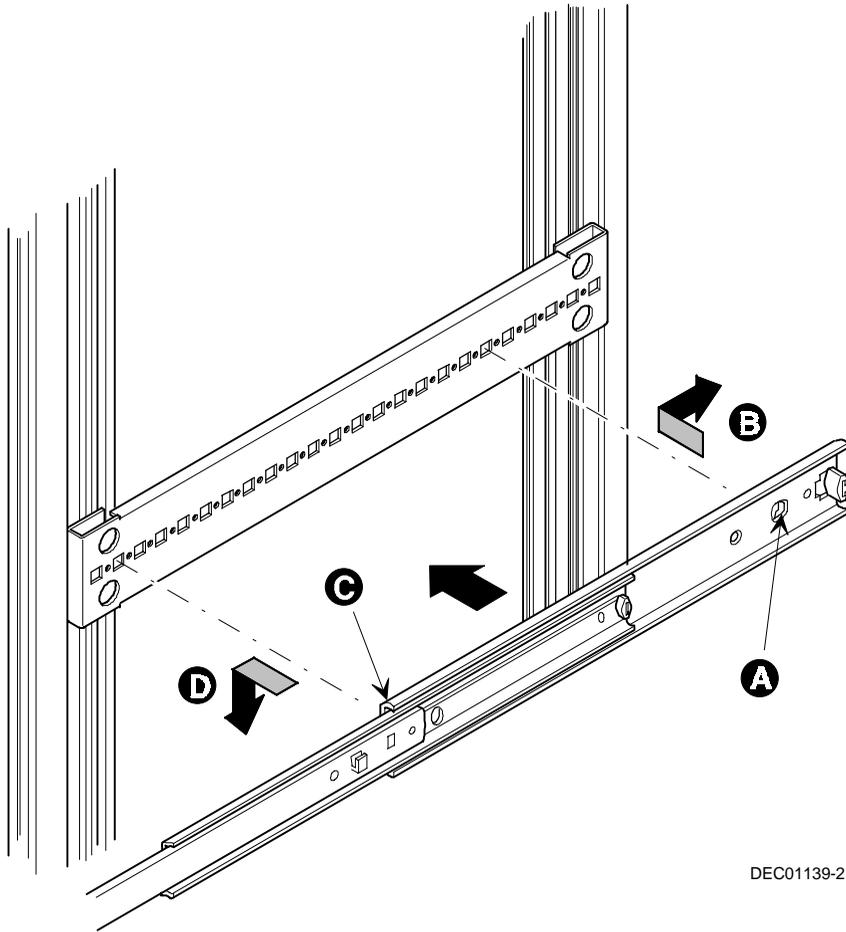


DEC01125-2

**Figure 3-4. Installing the Shelf Support Bracket (800mm Rackmount Shown)**

## Preparing the Rackmount

6. Perform the following to attach the sliding rails:
  - a. Engage the latch at the rear of the slide into the 6<sup>th</sup> hole from the rear of the shelf support bracket. For the 900mm bracket, use the middle row of holes. (A, Figure 3-5).
  - b. Push in and to the rear to secure (B, Figure 3-5).
  - c. The hook at the front of the sliding rail goes into the corresponding hole in the front (C, Figure 3-5).
  - d. Push in and down to secure (D, Figure 3-5).

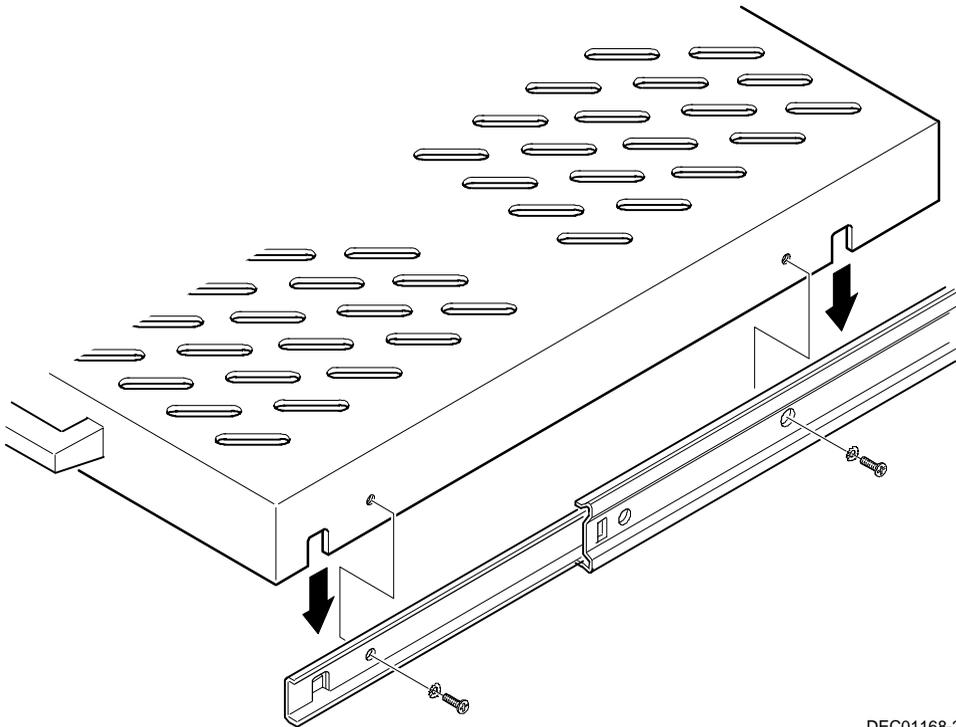


DEC01139-2

Figure 3-5. Installing the Sliding Rails

## Preparing the Rackmount

7. Extend the sliding rails all the way out and securely place the shelf onto them. Attach the rail using the four screws (two on each side).
8. Attach the cable management arm to the back of the shelf (see Figure 3-7).
9. Attach the cable management arm to the rackmount (see Figure 3-11).



DEC01168-2

**Figure 3-6. Installing a Shelf**

## Adjusting Shelves (800mm Rackmount)

The 42U x 800mm version of the rackmount comes with four movable shelves. Before adjusting any shelf, check to see if it is already in a place that fits your particular mounting configuration.

To adjust a shelf:

1. Open the front and rear doors.
2. Remove the side panels.



**NOTES:** You might find it easier to remove the side panels before you adjust the shelves.

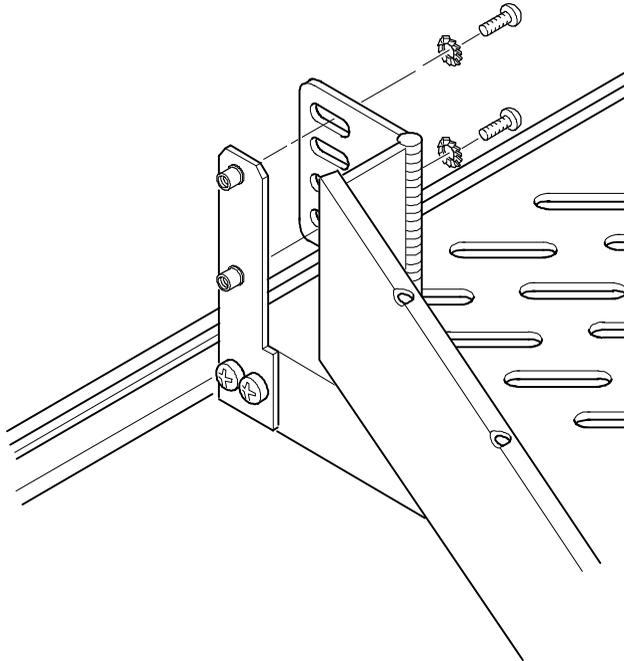
Due to the size of the cable management arm, the minimum configuration size for a shelf is 2.5U.<sup>1</sup>

3. Remove the screws that attach the cable arm to the shelf, these screws are removed at the point where the shelf attaches to the cable arm (see Figure 3-7).

---

<sup>1</sup> The universal shelf is 1U high. However, it includes a cable management arm that rises 2.2U above the top of the shelf. If a device mounted on the shelf measures less than 2.2U (keyboard, mouse, etc.), then a measurement of 3.5U must be allocated for the shelf and the device.

Preparing the Rackmount



DEC01126A

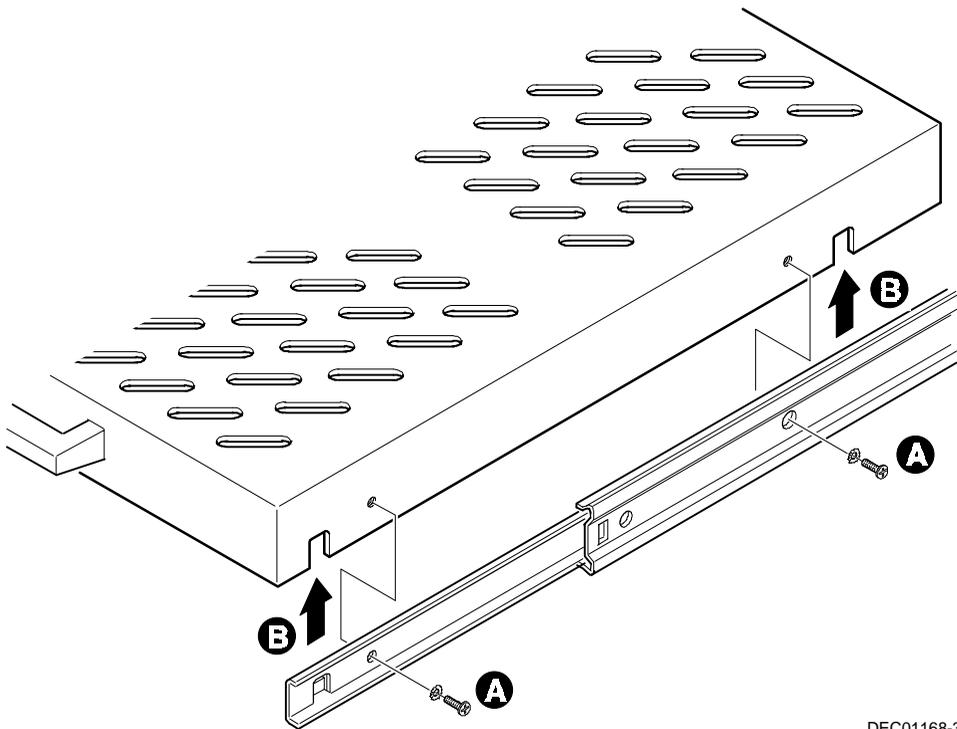
**Figure 3-7. Removing the Cable Management Arm from the Shelf**

4. Remove the four screws (A, Figure 3-8) holding the shelf to the sliding rail (two screws on each side).



**NOTE:** The shelf has to be out all the way on the slides to be able to get at the screws.

5. Take out the shelf by lifting it up (B, Figure 3-8). You might have to tap slightly to force it up.

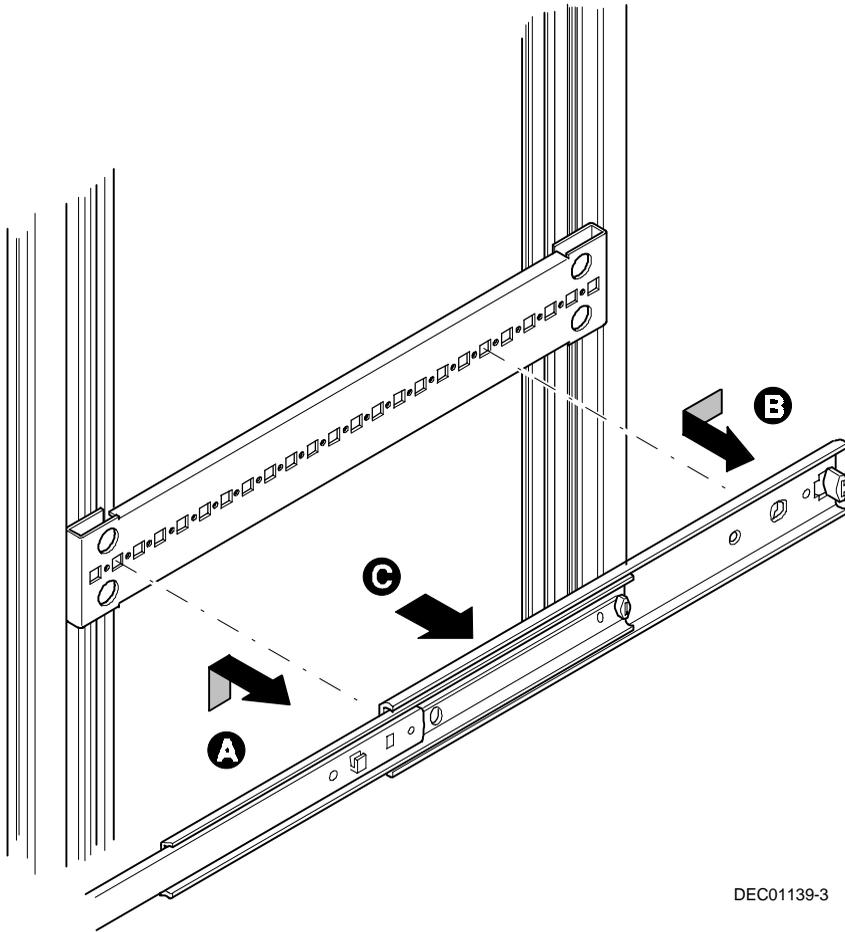


DEC01168-3

**Figure 3-8. Removing the Shelf**

## Preparing the Rackmount

6. Remove the sliding rail by:
  - a. Lifting up the front part (A, Figure 3-9) so that the latch disengages from the shelf support bracket.
  - b. Pulling the rail towards the front of the rackmount to disengage the rear latch (B, Figure 3-9) .
  - c. Pulling off the side rail (C, Figure 3-9).



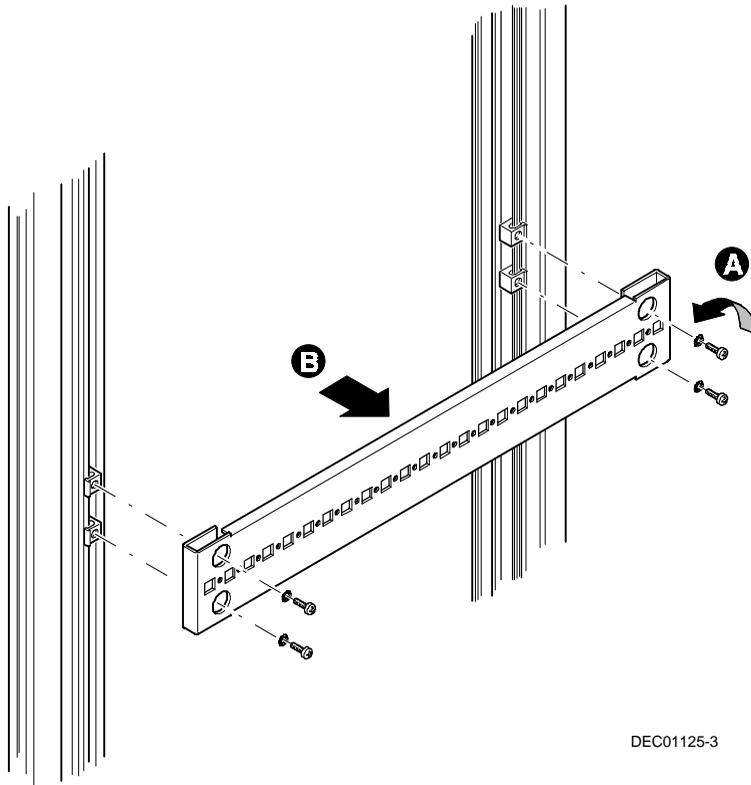
DEC01139-3

**Figure 3-9. Removing the Sliding Rail**

## Preparing the Rackmount

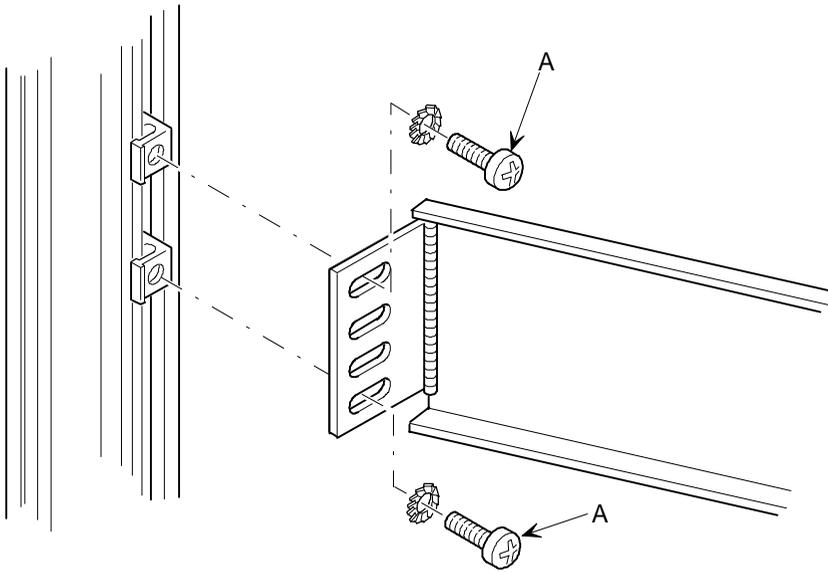
7. Remove the screws holding the shelf support bracket to the U-nuts to remove the shelf support bracket. Turn each of the four screws (A, Figure 3-10) counterclockwise.
8. Remove the shelf support bracket (B, Figure 3-10)
9. Slide the U-nuts to the new position.

*Refer to "Installing a Shelf" for information on installing shelf support brackets and sliding rails.*



**Figure 3-10. Removing the Shelf Support Bracket**

10. Remove the two screws securing the cable management arm and bracket to the U-nuts (A, Figure 3-11).
11. Adjust the U-nuts to the desired position.
12. Secure the cable management arm to the U-nuts using the previously removed screws.



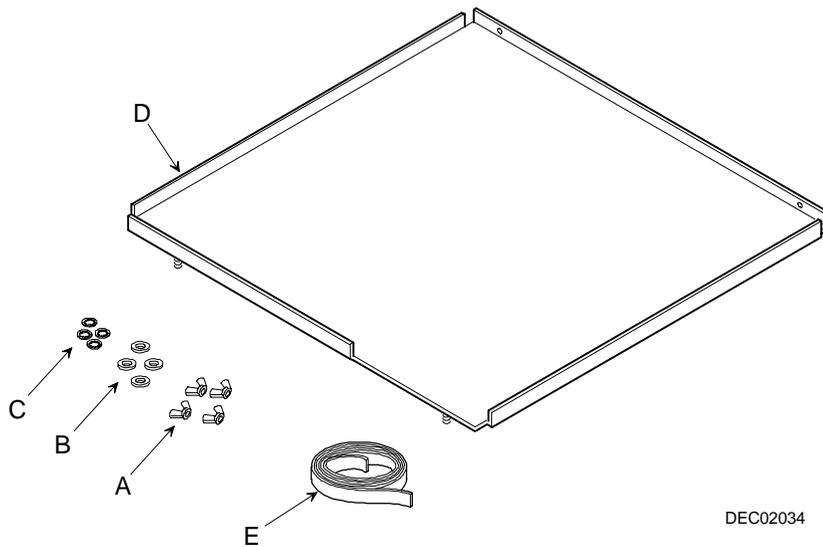
DEC01122A

**Figure 3-11. Cable Management Arm on the Rackmount**

## Server Mounting Tray(s) Assembly

Server mounting kits can be used with the DIGITAL Server 5100/5200 and 7100 and the DIGITAL Prioris LX and XL Servers. The following table identifies each kit part.

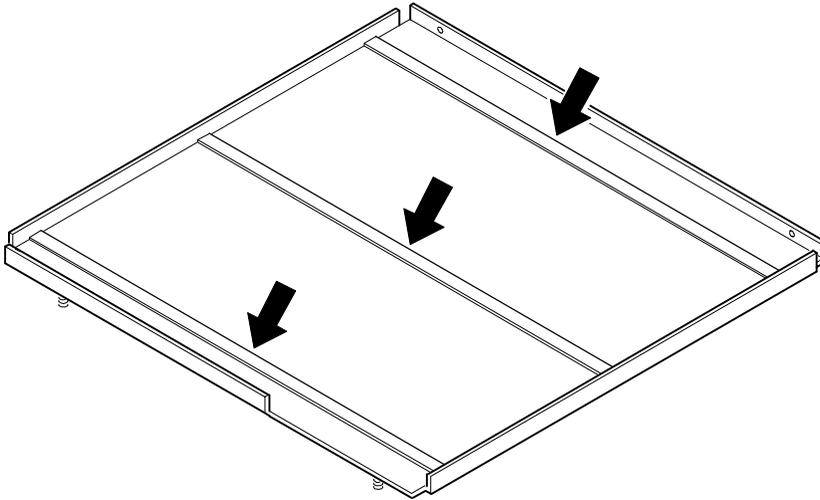
Figure Legend	Component
A	Wing nuts
B	Flat washers
C	Lock washers
D	Tray (trays for each model are different sizes)
E	Roll of foam tape



DEC02034

Figure 3-12. Server Tray Mounting Kit

1. Cut the foam to size as required.
2. Apply the foam mounting tape to the tray as shown.



DEC02035

**Figure 3-13. Applying the Foam Mounting Tape**

# Mounting Server Components

---

# 4

## Introduction

This chapter describes how to mount your DIGITAL Servers, monitor, console, keyboard, and mouse into the rackmount. Note that the following procedures are based on the typical rackmount configurations described in Chapter 2 and that your specific configuration might differ. The following DIGITAL Servers are detailed.

- DIGITAL Server 3100/3200
- DIGITAL Server 3100R/3200R
- DIGITAL Server 3300R
- DIGITAL Server 5100/5200 and 7100
- DIGITAL Server 7100R
- DIGITAL Prioris XL Server
- DIGITAL Prioris LX Server



**WARNING:** Make sure you extend the rackmount stabilizer before you install any component. Also, make sure you install the heaviest components starting at the bottom. Failure to do so may cause the rackmount to tip forward which could result in severe personal injury or equipment damage.

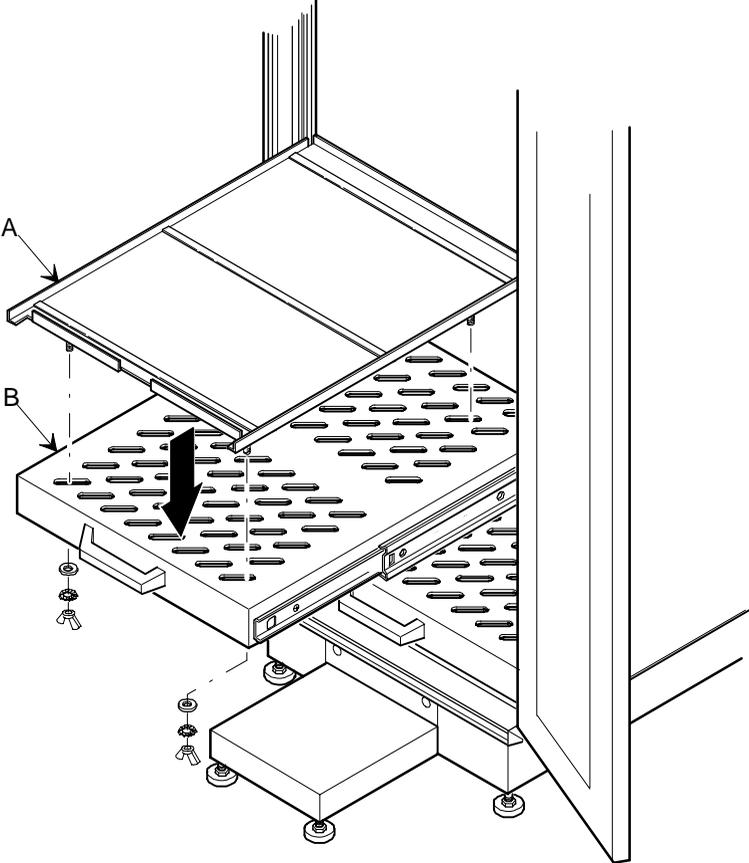


**NOTE:** Because some servers are installed in the rackmount on their sides, you might have to physically engage the clips of the CD-ROM drive to hold the CD-ROM disc in the tray.

## Mounting the DIGITAL Server 5100/5200 and 7100

To install the DIGITAL Server 5100/5200 and 7100 into the rackmount, do the following:

1. Open the front and rear doors.
2. Extend the rackmount stabilizer and adjust the leveling feet as required.
3. Assemble the server mounting trays.  
*Refer to Chapter 3, "Preparing the Rackmount," for more information.*
4. Adjust and/or install all required universal shelves (B, Figure 4-1) to the desired position.
5. Attach the server mounting trays (A, Figure 4-1) onto the appropriate universal shelves in the rackmount.



DEC01127

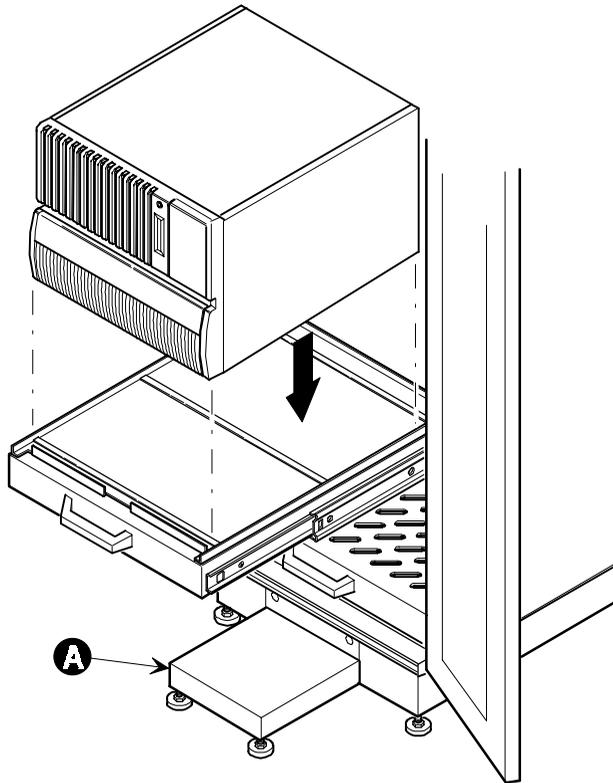
**Figure 4-1. Attaching a DIGITAL Server 5100/5200 and 7100 Mounting Tray**



**WARNING:** Use extreme care when lifting the server. Due to its weight, two people are required to lift it. Failure to use at least two people may result in severe personal injury as well as violate certain safety regulations. This could also result in equipment damage.

## Mounting Server Components

6. Using two people, carefully lift and place the servers onto the appropriate mounting trays. Make sure the stabilizer (A, Figure 4-2) is positioned as shown. Also, note that the servers are not bolted to the trays.
7. Return the rackmount stabilizer to its original position.
8. Close the front and rear doors.



DEC01128

**Figure 4-2. Installing a DIGITAL Server 5100/5200 and 7100 into the Rackmount**

## Mounting the DIGITAL Prioris XL Server

To install the DIGITAL Prioris XL Server into the rackmount, do the following:

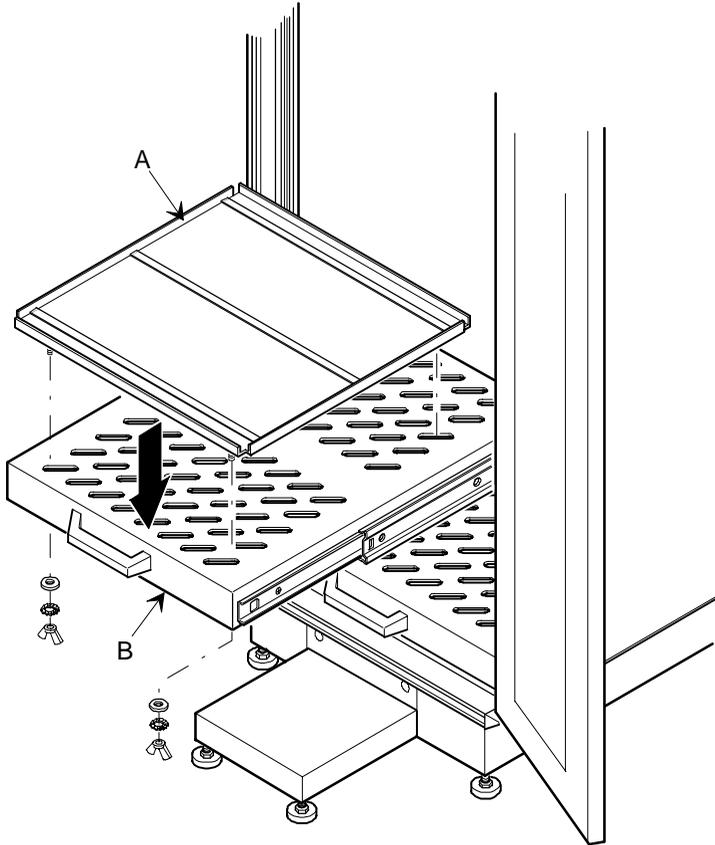
1. Open the front and rear doors.
2. Extend the rackmount stabilizer and adjust the leveling feet as required.
3. Assemble the server mounting tray(s)

*Refer to Chapter 3, "Preparing the Rackmount," for more information.*

4. Adjust and/or install all required universal shelves (B, Figure 4-3) to the desired position.

## Mounting Server Components

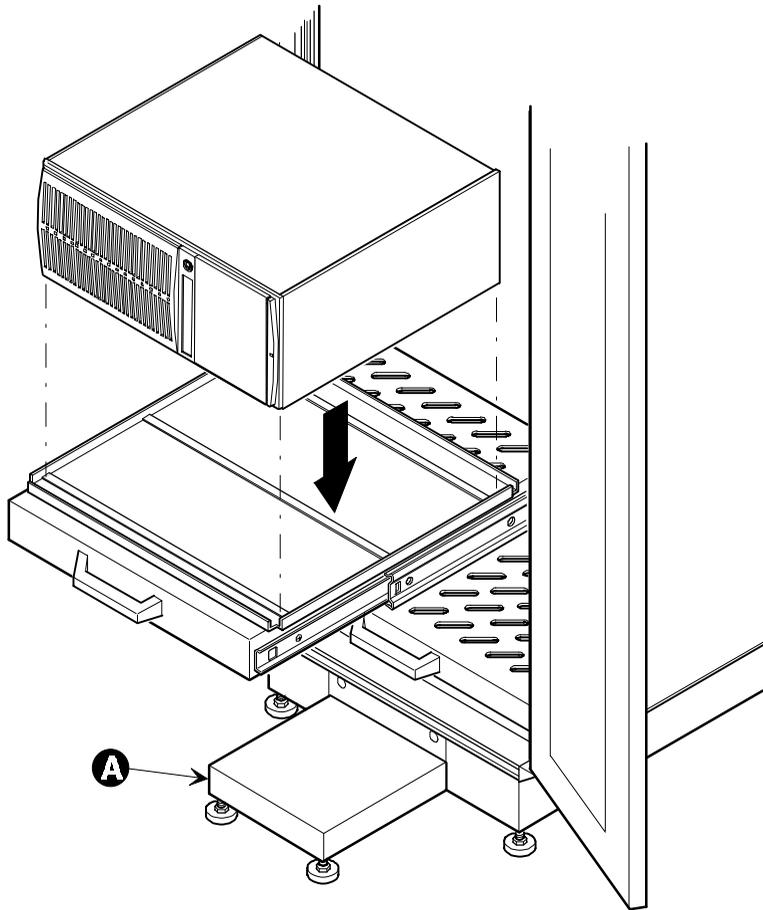
5. Attach the server mounting trays (A, Figure 4-3) onto the appropriate universal shelves in the rackmount.



DEC01137

**Figure 4-3. Attaching a DIGITAL Prioris XL Server Mounting Tray**

6. Carefully lift and place the servers onto the appropriate mounting trays. Make sure the stabilizer (A, Figure 4-4) is positioned as shown. Also, note that the servers are not bolted to the trays.
7. Return the rackmount stabilizer to its original position.
8. Close the front and rear doors.



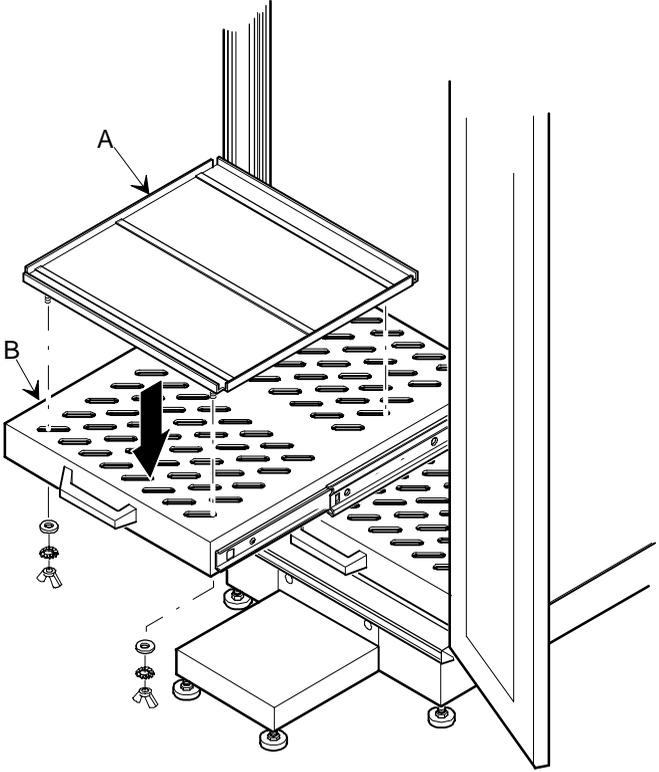
DEC01138

**Figure 4-4. Installing a DIGITAL Prioris XL Server into the Rackmount**

## Mounting the DIGITAL Prioris LX Server

To install the DIGITAL Prioris LX Server into the rackmount, do the following:

1. Open the front and rear doors.
2. Extend the rackmount stabilizer and adjust the leveling feet as required.
3. Assemble the server mounting tray(s)  
*Refer to Chapter 3, "Preparing the Rackmount," for more information.*
4. Adjust and/or install all required universal shelves (B, Figure 4-5) to the desired position.
5. Attach the server mounting trays (A, Figure 4-5) onto the appropriate shelves in the rackmount.

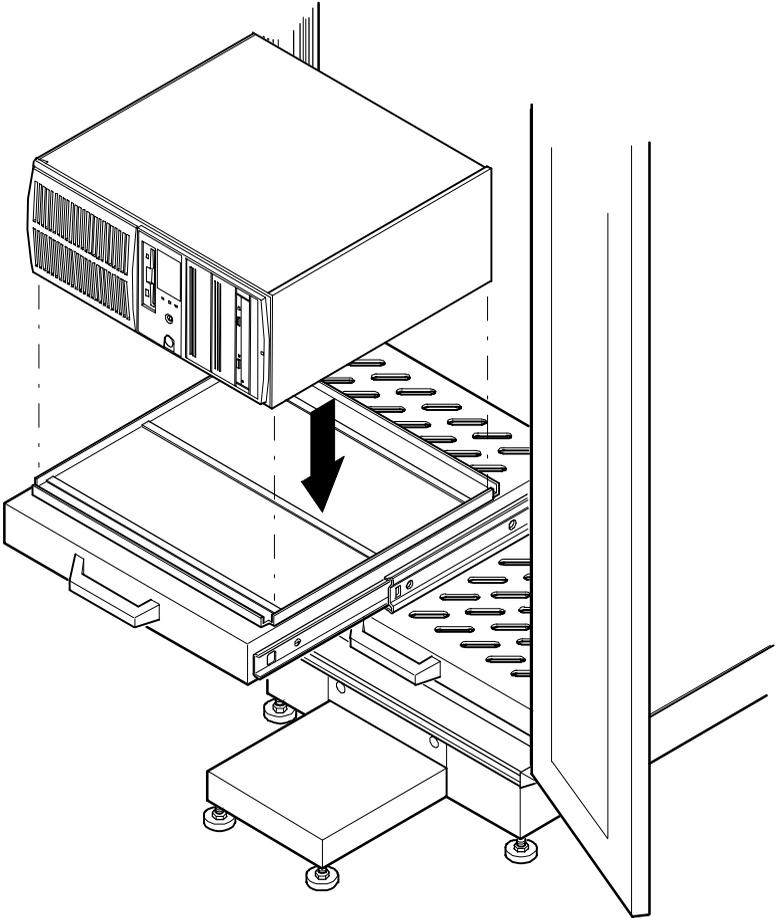


DEC01129

**Figure 4-5. Attaching a DIGITAL Prioris LX Server Mounting Tray**

## Mounting Server Components

6. Carefully lift and place the servers onto the appropriate mounting trays making sure that the stabilizer is positioned as shown. Note that the servers are not bolted to the trays.
7. Return the rackmount stabilizer to its original position.
8. Close the front and rear doors.



DEC01130

**Figure 4-6. Installing a DIGITAL Prioris LX Server into the Rackmount**

## Mounting the DIGITAL Server 7100R

To install the DIGITAL Server 7100R into the rackmount, do the following:

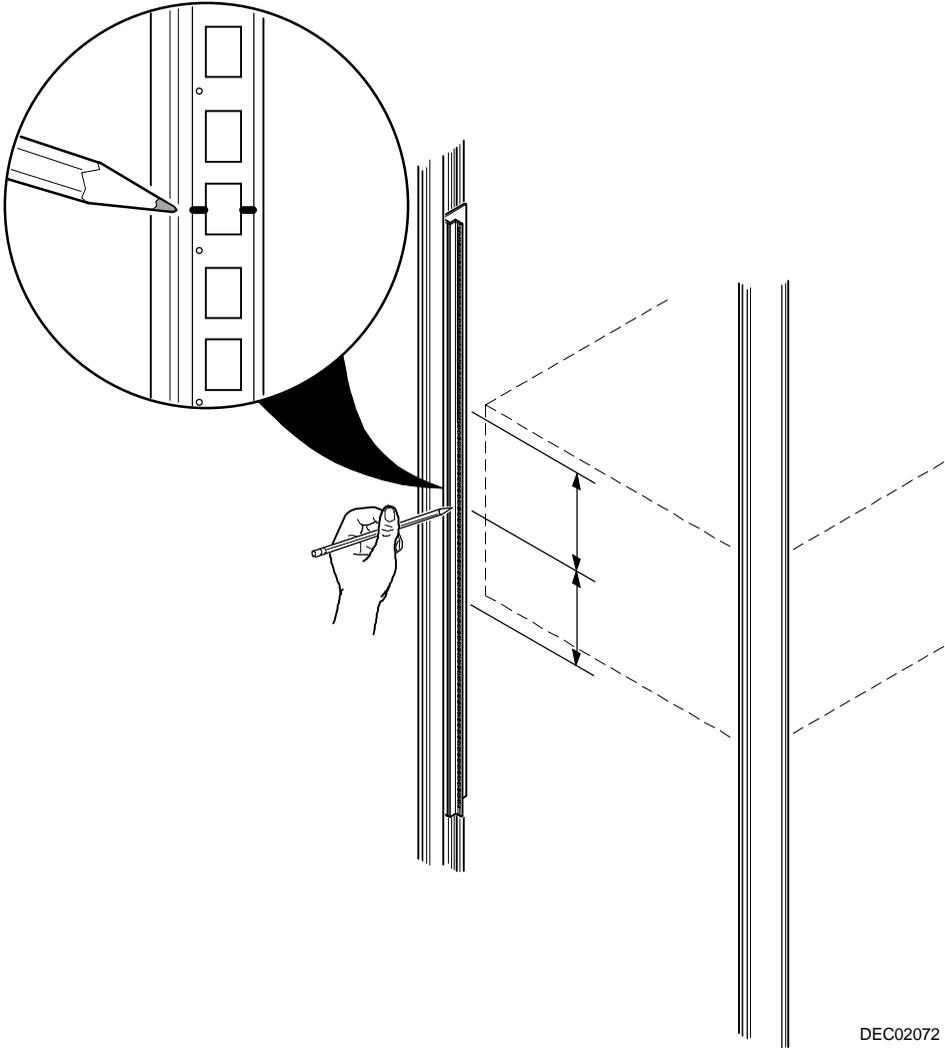
1. Open the front and rear doors.
2. Extend the rackmount stabilizer and adjust the leveling feet as required.
3. Remove the two slide inserts from the slides that came with your server.

## Marking the Installation Area on the Rackmount

1. Mark the midpoint hole on the vertical rail (Figure 4-7). The midpoint hole must be selected so that the holes immediately above and immediately below are equidistant.
2. Mark the corresponding hole on the remaining three rails.



**NOTE:** Each 14U rail is marked with dimples at 1U increments. To locate the midpoint of a U measurement, find the two dimples and then find the center between the dimples.



DEC02072

**Figure 4-7. Marking the Installation Area on the Rackmount**

## Assemble the Slide Mounting Brackets

1. Attach the two sets of mounting brackets to each end of the slide making sure that the two holes are exposed at the end (Figure 4-8).

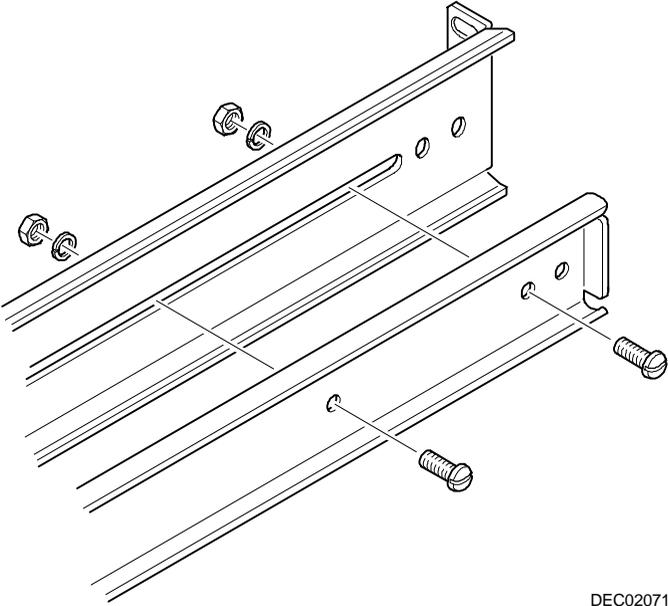
At the other end of the slide (Figure 4-9), insert the screws through the large hole, one screw at a time. The following procedures explain each step that must be completed for each slide:

2. Attach the rear mounting bracket:



**NOTE:** Allow two inches of clearance beyond the slide for the bracket assembly.

- a. Move the slide assembly so that the two holes are visible.
- b. Place the two screws through the 3-inch slot of the mounting bracket.
- c. Place the two screws through each hole in the slide.
- d. Put the washers and nuts onto the screws and tighten.

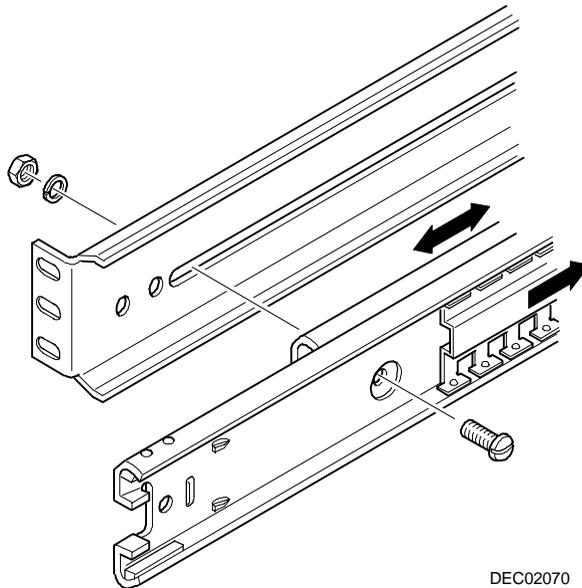


DEC02071

**Figure 4-8. Attaching the Rear Mounting Bracket**

## Mounting Server Components

3. Attach the front mounting bracket:
  - a. Move the slide assembly down so that the two holes are visible (Figure 4-9).
  - b. Place the two screws through the 3-inch slot of the mounting bracket.
  - c. Place the two screws through each hole in the slide.
  - d. Place the washers and nuts onto the screws and tighten.



**Figure 4-9. Attaching the Front Mounting Bracket**

## Attaching Mounting Angles to the Rackmount

If the rackmount does not already have pre-installed mounting angles, complete the following steps:

1. Attach the mounting angles (see Figure 4-10) to the rackmount:
  - a. Locate three equally distributed points for attaching each angle to the rackmount (A, Figure 4-10).
  - b. Secure the mounting angles at the three points using the supplied U-nuts and screws (B, Figure 4-10).
  - c. Secure the mounting angle to the rackmount.

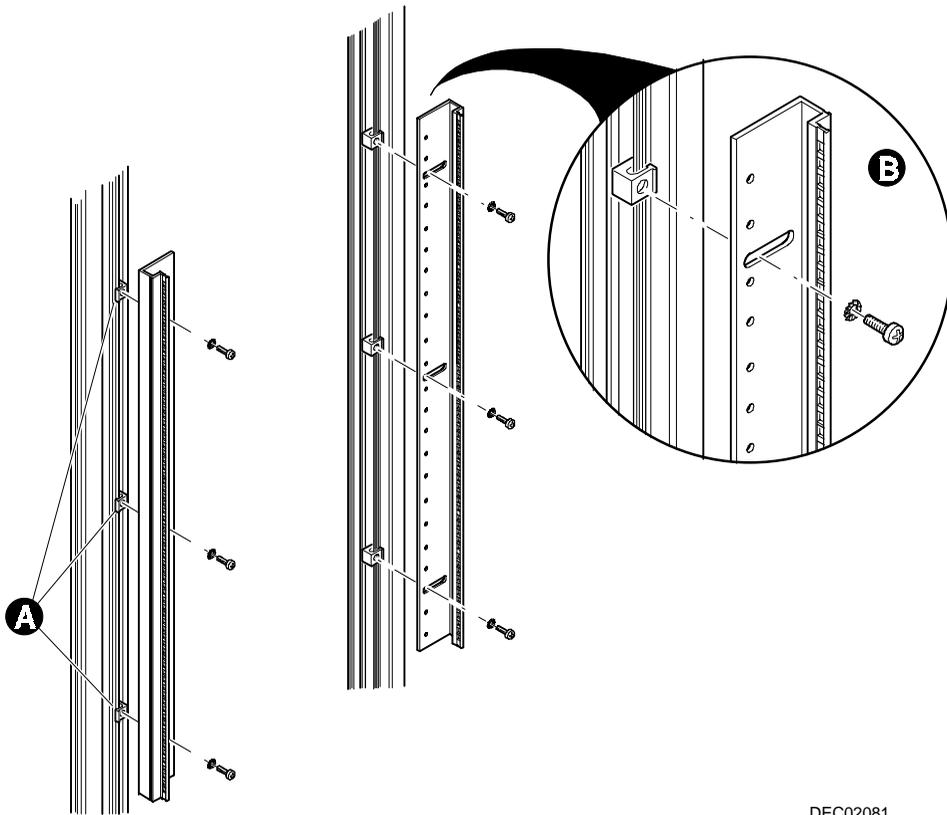


**CAUTION:** Make sure the mounting rails are the exact same height at both sides of the rackmount.

You must tighten the mounting angles to a torque value of 4.2 N-m to ensure rackmount stability. An unstable rackmount might cause personal injury and/or equipment damage.

2. Repeat the previous steps for the remaining mounting angles.

## Mounting Server Components



DEC02081

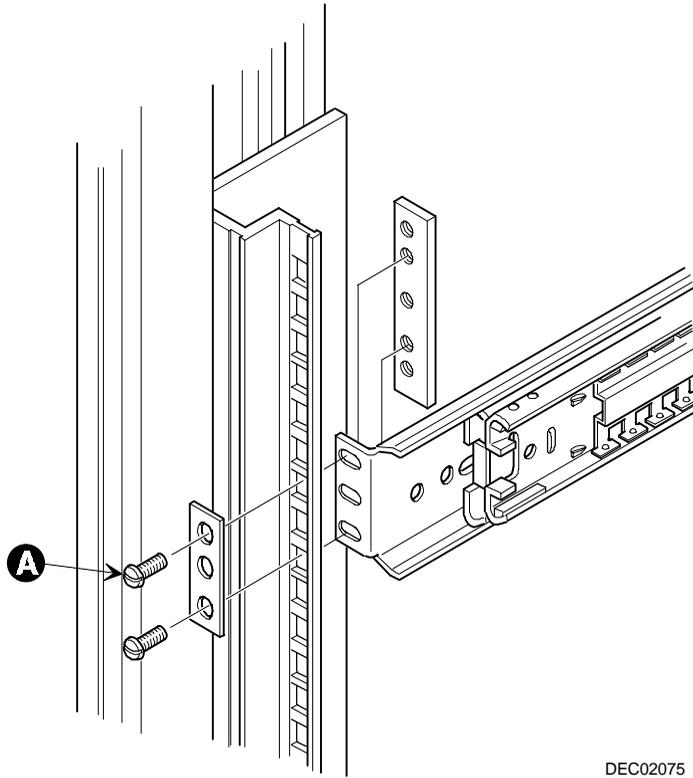
**Figure 4-10. Attaching the Mounting Angles**

## Attaching Slide Mounting Brackets to the Rackmount

1. Attach the two slides to the mounting angles:
  - a. Locate the position for the slides at the front and rear mounting angles.
  - b. Insert two screws and plastic cup washers through the washer plate, through the mounting rail, and then through each end of the slide bracket (see Figure 4-11).
2. Finger tighten the two screws to the nut plate (A, Figure 4-11). Do not completely tighten the screws until the server is properly aligned.
3. Repeat the previous steps to attach both slides.



**NOTE:** The bracket must be fastened 50.8mm (2 inches) behind the front rails to ensure proper door clearance.

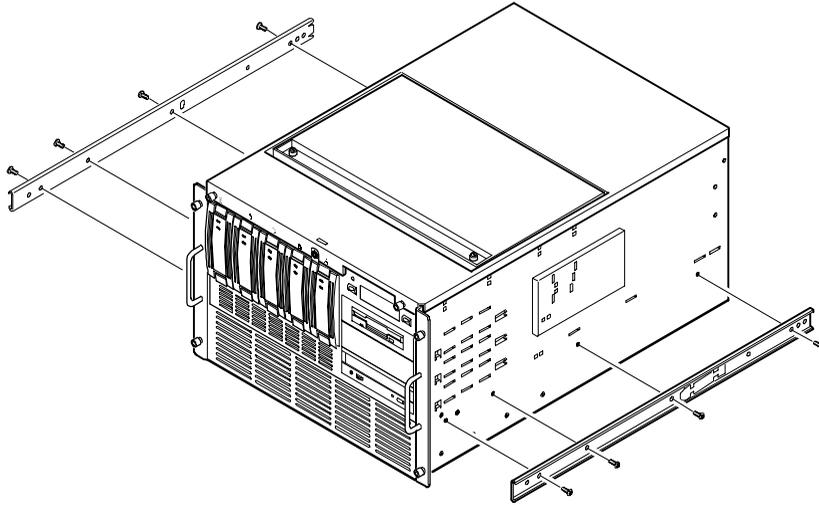


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**Figure 4-11. Attaching the Slides to the Mounting Angles**

## Inserting the DIGITAL Server 7100R into the Rackmount

1. Attach the two slide rail guides to the server using four screws.



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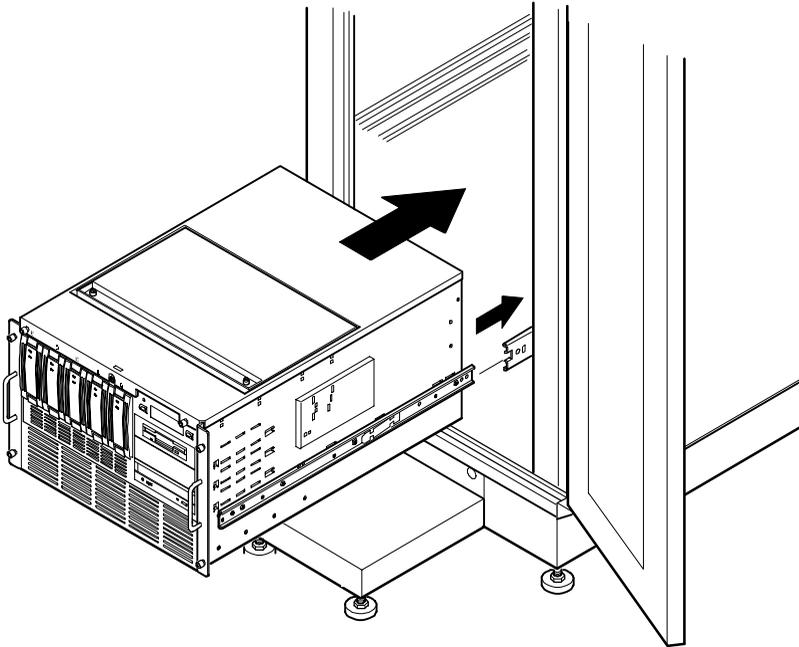
**Figure 4-12. Attaching the Slide Rail Guides**

## Mounting Server Components



**WARNING:** Use extreme care when lifting the server. Due to its weight, two people are required to lift it. Failure to use at least two people may result in severe personal injury as well as violate certain safety regulations. This could also result in equipment damage.

2. Using at least two people, install the server into the rackmount by placing the two slide rail guides that are attached to the server into the installed slides on the rackmount. Push the server into the rackmount.
3. Completely tighten the slide bracket screws.



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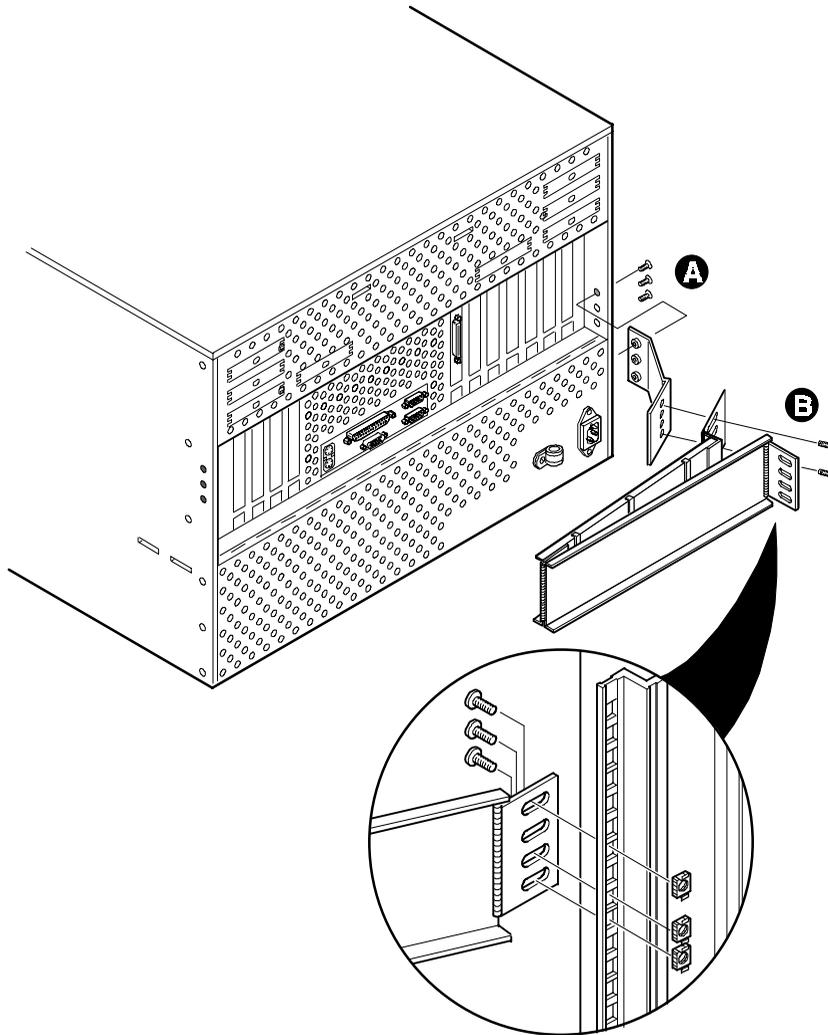
**Figure 4-13. Installing the DIGITAL Server 7100R**

## **Attaching the DIGITAL Server 7100R Cable Management Arm**

To attach the cable management arm:

1. Install the cable arm bracket to the inside of the chassis using three flat-head screws (A, Figure 4-14).
2. Attach the shorter of the cable management arms to the bracket using two pan-head screws (B, Figure 4-14).
3. Using three flat head screws, attach the long end of the cable management arm to the rear chassis rail. Insert and tighten the screws.

## Mounting Server Components



DEC02064

**Figure 4-14. Attaching the DIGITAL Server 7100R Cable Management Arm**

## Mounting the DIGITAL Server 3100R/3200R and the 3300R

To install the DIGITAL Server 3100R/3200R and the 3300R into the rackmount, do the following:

1. Open the front and rear doors.
2. Extend the rackmount stabilizer and adjust the leveling feet as required.

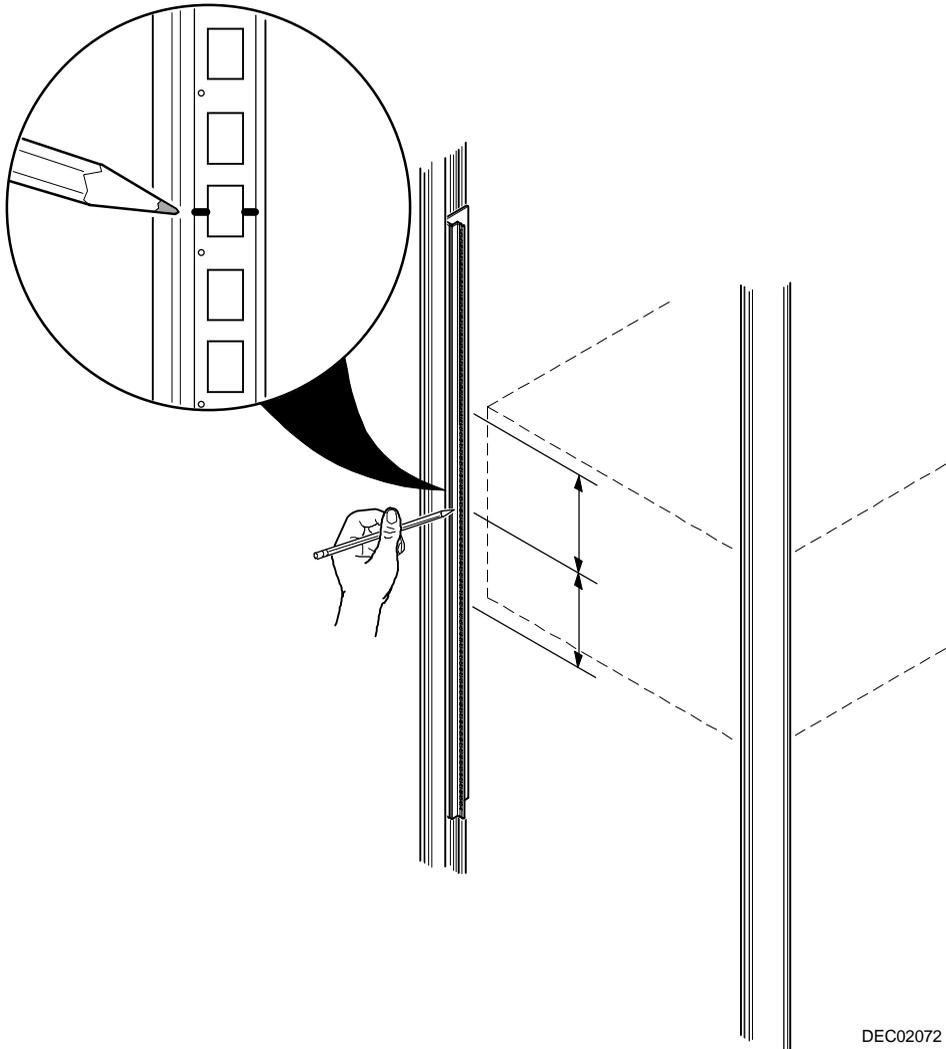
### Marking the Installation Area on the Rackmount

1. Mark the midpoint hole on the vertical rail (Figure 4-15). The midpoint hole must be selected so that the holes immediately above and immediately below are equidistant.
2. Mark the corresponding hole on the remaining three rails.



**NOTE:** Each 14U rail is marked with dimples at 1U increments. To locate the midpoint of a U measurement, find the two dimples and then find the center between the dimples.

## Mounting Server Components

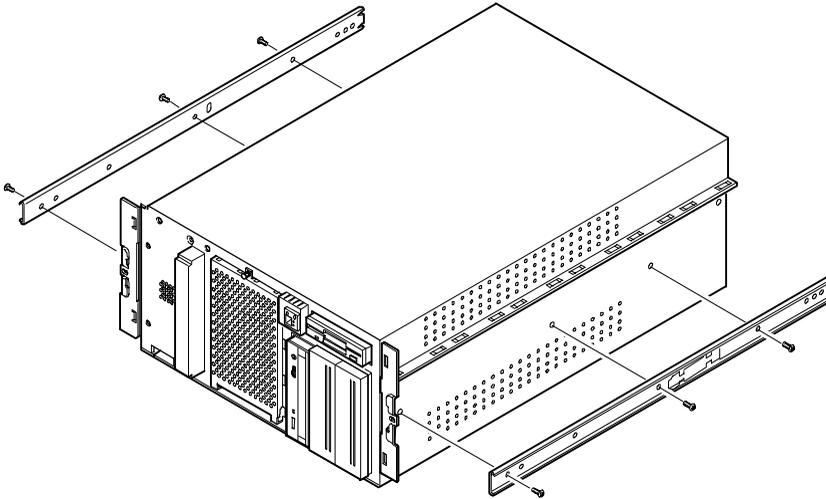


DEC02072

**Figure 4-15. Marking the Installation Area on the Rackmount**

## Attaching the Server Slide Rail Guides

1. Secure one of the slide rail guides to the server using three screws.
2. Attach the remaining slide rail guide.



DEC02069

**Figure 4-16. Attaching the Slide Rail Guides**

## Assemble the Slide Mounting Brackets

1. Attach the two sets of mounting brackets to each end of the slide making sure that the two holes are exposed at the end (Figure 4-17).

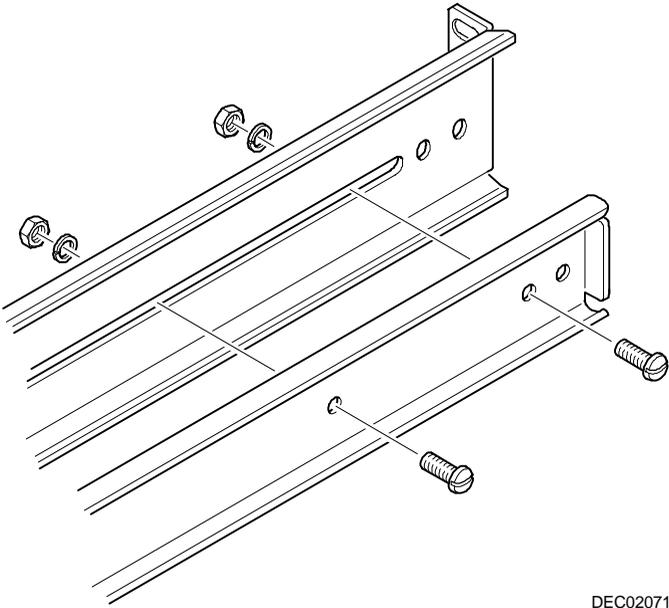
At the other end of the slide (Figure 4-18), insert the screws through the large hole, one screw at a time. The following procedures explain each step that must be completed for each slide:

2. Attach the rear mounting bracket:



**NOTE:** Allow two inches of clearance beyond the slide for the bracket assembly.

- a. Move the slide assembly so that the two holes are visible.
- b. Place the two screws through the 3-inch slot of the mounting bracket.
- c. Place the two screws through each hole in the slide.
- d. Put the lock washers and nuts onto the screws and finger tighten.

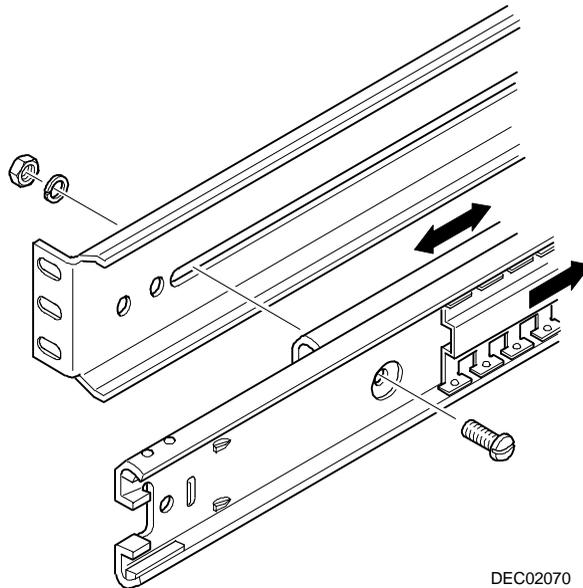


DEC02071

**Figure 4-17. Attaching the Rear Mounting Bracket**

## Mounting Server Components

3. Attach the front mounting bracket:
  - a. Move the slide assembly down so that the two holes are visible (Figure 4-18).
  - b. Place the two screws through the 3-inch slot of the mounting bracket.
  - c. Place the two screws through each hole in the slide.
  - d. Place the lock washers and nuts onto the screws and finger tighten.



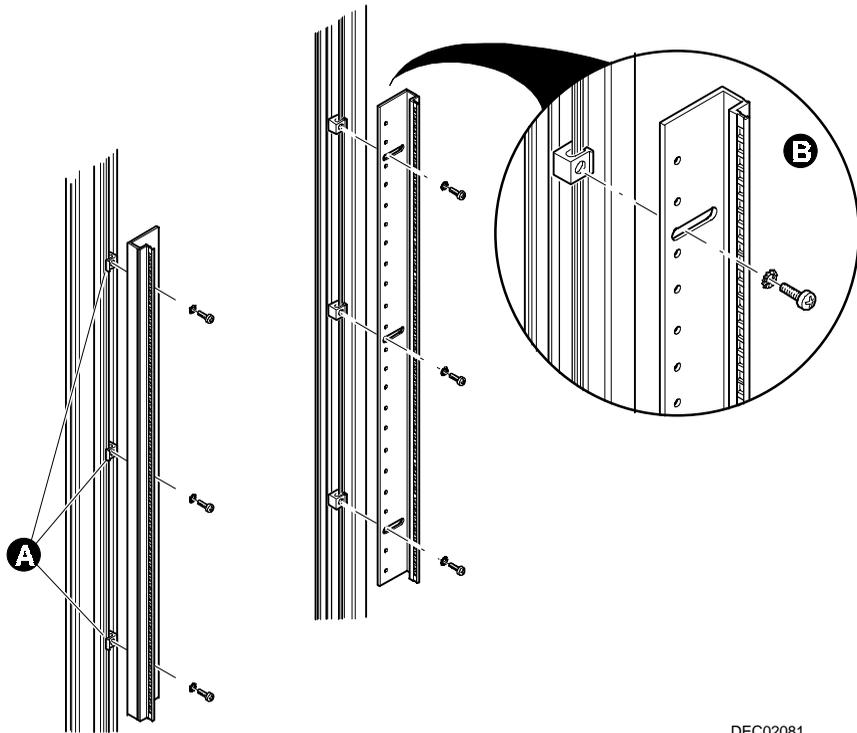
**Figure 4-18. Attaching the Front Mounting Bracket**

## Attaching Mounting Angles to the Rackmount

If the rackmount does not already have pre-installed mounting angles, complete the following steps:

1. Attach the three mounting angles (see Figure 4-19) to the rackmount by:
  - a. Locating three equally distributed points for attaching each angle to the rackmount (A, Figure 4-19).
  - b. Secure the mounting angles at the three points using the supplied U-nuts and screws (B, Figure 4-19).
2. Repeat the previous steps for the remaining mounting angles.

# Mounting Server Components



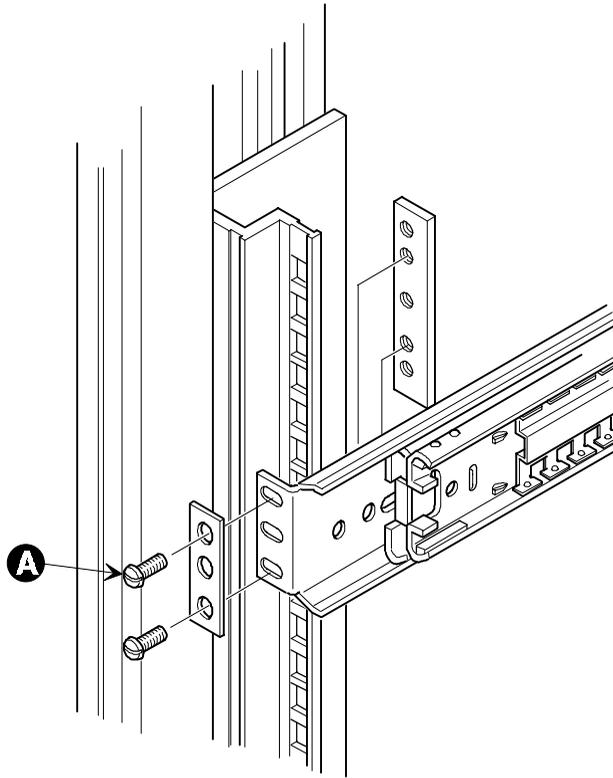
DEC02081

**Figure 4-19. Attaching the Mounting Angles**

## **Attaching Mounting Brackets with Slides to the Rackmount**

Attach the two slides to the mounting angles:

1. Locate the position for the slides at the front and rear mounting angles.
2. Insert two screws and two plastic cup washers through the washer plate, through the mounting rail, and then through each end of the slide bracket (see Figure 4-20).
3. Finger tighten the two screws to the nut plate (A, Figure 4-20). Do not completely tighten the screws until the server is properly aligned.
4. Repeat the previous steps to attach the other slides.
5. Tighten all screws.



DEC02082

**Figure 4-20. Attaching the Slides to the Mounting Angles**

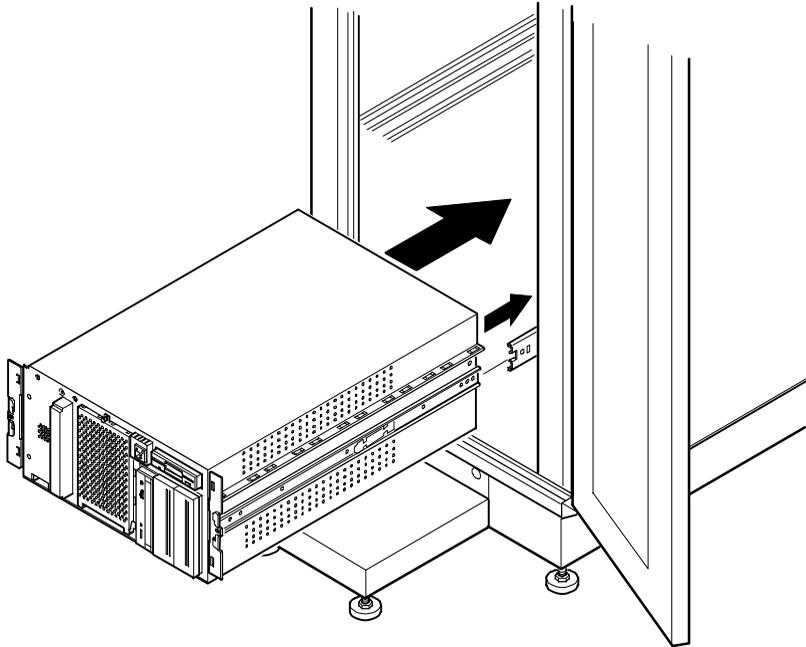
## Inserting the DIGITAL Server 3100R/3200R and the 3300R into the Rackmount



**WARNING:** Use extreme care when lifting the server. Due to its weight, two people are required to lift it. Failure to use at least two people may result in severe personal injury as well as violate certain safety regulations. This could also result in equipment damage.

1. Fully extend the slides from inside the rackmount.
2. Using at least two people, lift the server and align the narrow segment of the chassis slides attached to the server with the chassis slides attached to the rackmount).
3. Slide the server into the rackmount. Press in on the retainer spring on both slides to completely install the server into the rackmount.
4. Insert one 10x32 screw on each side through the mounting ear and then into the rail to secure the server in place. This is optional, as the screws will need to be removed to use the slides.
5. Align the front bezel with the front of the server and then snap it into place.

## Mounting Server Components



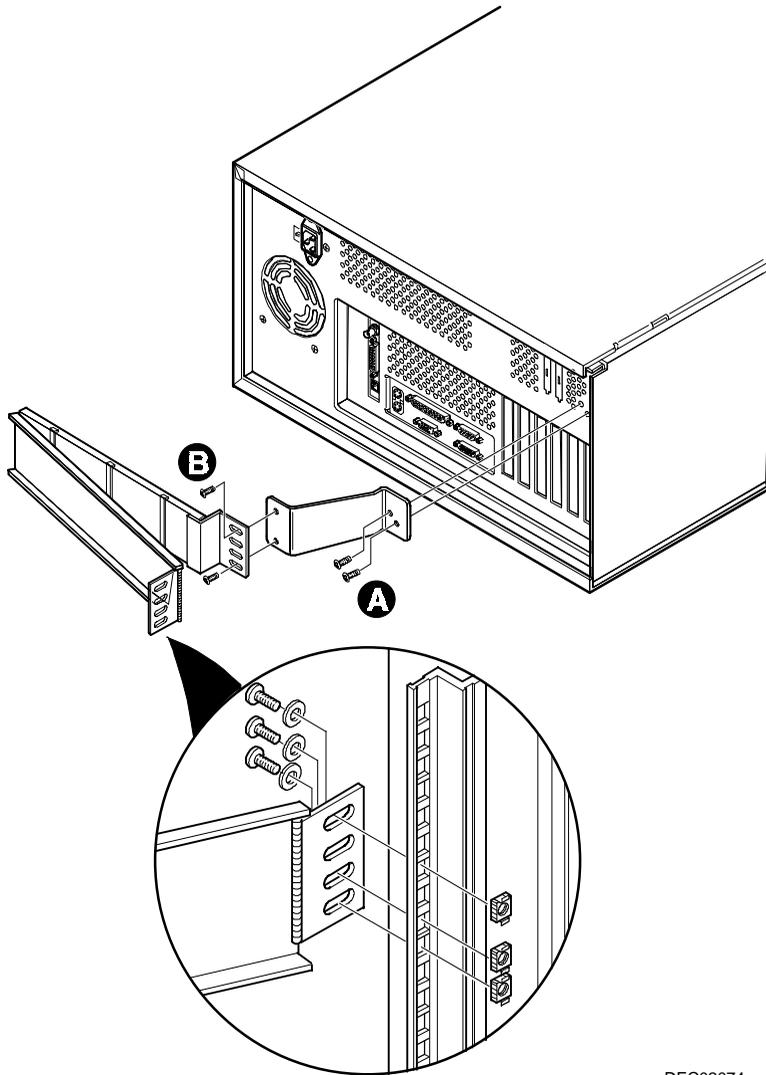
DEC02073

**Figure 4-21. Inserting the DIGITAL Server 3100R/3200R and 3300R into the Rackmount**

## **Attaching the DIGITAL Server 3100R/3200R and 3300R Cable Management Arm**

Attach the cable management arm:

1. Install the cable management arm bracket to the inside of the chassis using two pan-head screws (M4x10mm lg) (A, Figure 4-22).
2. Attach the shorter of the cable management arms to the bracket using two 10x32 pan-head screws (B, Figure 4-22). The longer arm attaches to the rackmount.



DEC02074

**Figure 4-22. Attaching the DIGITAL Server 3100R/3200R and 3300R Cable Management Arm**

## Mounting a Monitor, Console, or Keyboard (800mm Rackmount)

The monitor, keyboard, and console are not attached to the shelf, they sit on the shelf and are braced for stability with the enclosed posts. To install a monitor, console, or keyboard, do the following:

1. Attach four mounting posts (A, Figure 4-23) to keep the monitor, console, or keyboard in place on the appropriate rackmount shelf.

*Refer to Chapter 2, "Typical Rackmount Configurations" for more information.*

2. Place a monitor, console, or keyboard inside the mounting posts.

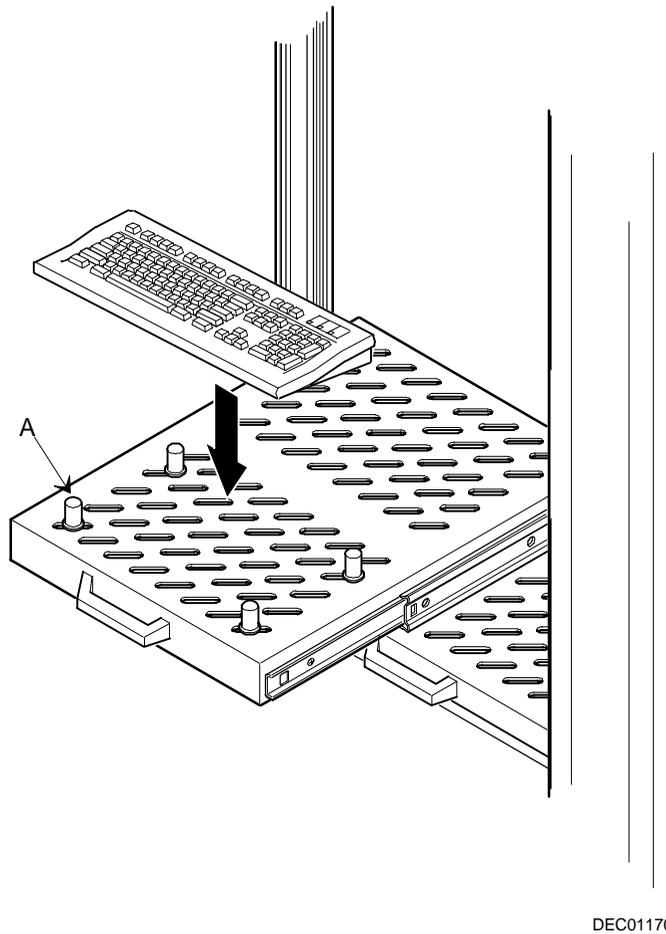


**NOTE:** The mounting posts do not secure the device to the shelf. They are used to keep the device from sliding.

Also, the console can be placed behind the keyboard on the same shelf.

The 900mm rackmount uses different different pre-installed monitor and keyboard shelves.

## Mounting Server Components



**Figure 4-23. Mounting a Monitor, Console, and Keyboard (800mm Rackmount)**

## Mounting a Mouse Shelf (800mm Rackmount)

To attach a mouse shelf, do the following:

1. Place the lock washer (B, Figure 4-24), washer (C, Figure 4-24), and non-threaded nylon spacer (H, Figure 4-24) on the bolt (I, Figure 4-24).
2. Guide the bolt through the hole on the mouse shelf.
3. Place a ball bearing (E, Figure 4-24), in one of the rounded recesses on the mouse shelf (G, Figure 4-24).
4. Place the second ball bearing inside the recessed portion of the threaded nylon spacer (D, Figure 4-24), followed by the spring (F, Figure 4-24).
5. Then, holding the spring and ball bearing inside the threaded spacer, guide the threaded spacer onto the bolt.
6. Guide the bolt through the corner air hole of the shelf.
7. Place the washer, lock washer, and nut (A, Figure 4-24) on the shaft, and then tighten nut.

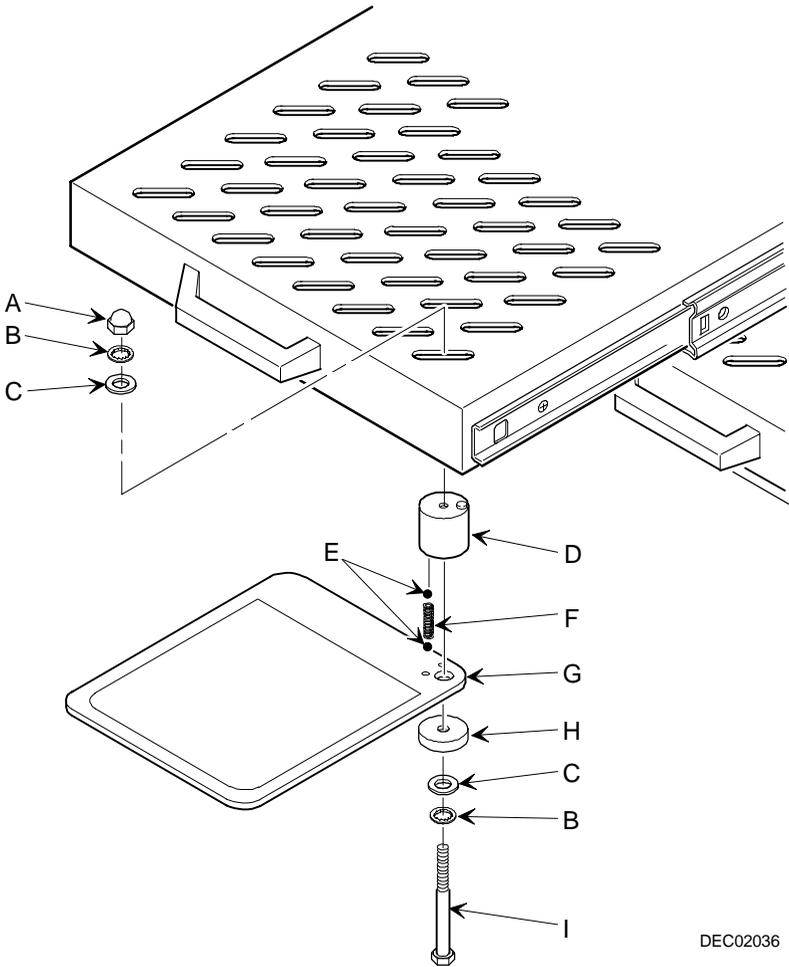
Make sure both ball bearings are seated with the spring between them before tightening the nut.

## Mouse Shelf Parts

---

<b>Figure Legend</b>	<b>Component</b>
A	Nut
B	Lock washers (2)
C	Washers (2)
D	Spacer (threaded)
E	Ball bearings (2)
F	Spring
G	Mouse shelf
H	Spacer (non-threaded)
I	Bolt

---



DEC02036

Figure 4-24. Mounting the Mouse Shelf (800mm)

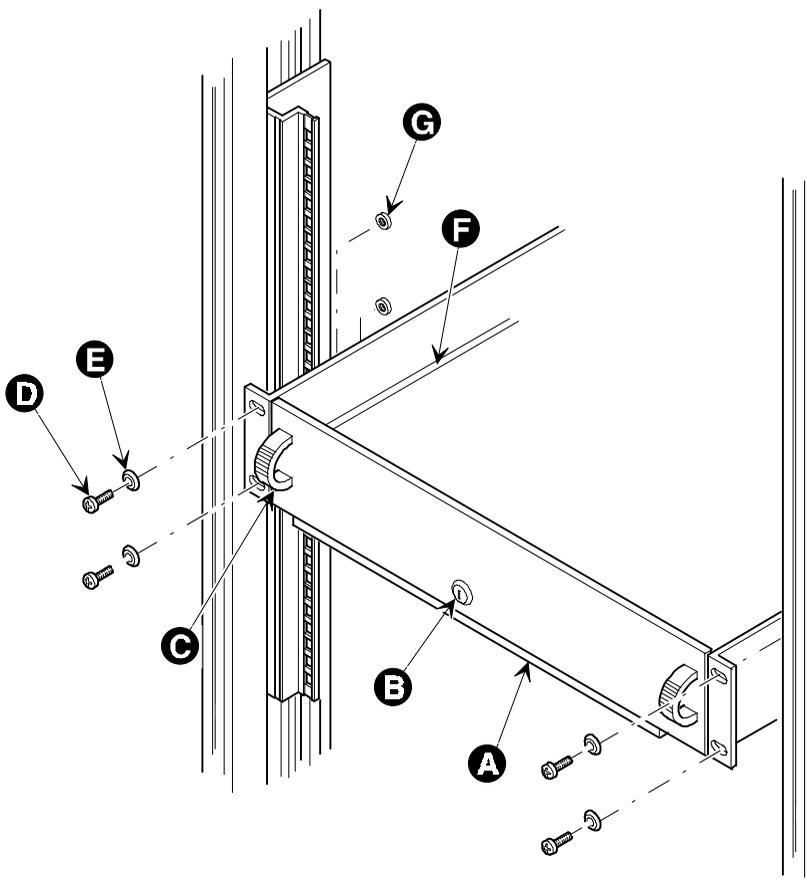
## Installing a Keyboard Drawer (900mm Rackmount)

Install a keyboard drawer for the 16-inch keyboard and mouse into a 900mm rackmount by attaching the keyboard drawer to the two front mounting angles. The following components make up the keyboard drawer.

Figure Legend	Component
A	Mouse shelf
B	Lock
C	Handles
D	Rubber washer
E	Screw
F	Slide
G	Nut

To install the keyboard drawer:

1. Align the front bezel of the keyboard drawer with the rackmount rails. Make sure the keyboard drawer is at a level position.
2. Insert the screws (E, Figure 4-25) with rubber washers (D, Figure 4-25) into the holes and then secure using the supplied nuts (G, Figure 4-25).



DEC02080

Figure 4-25. Installing the Keyboard Drawer

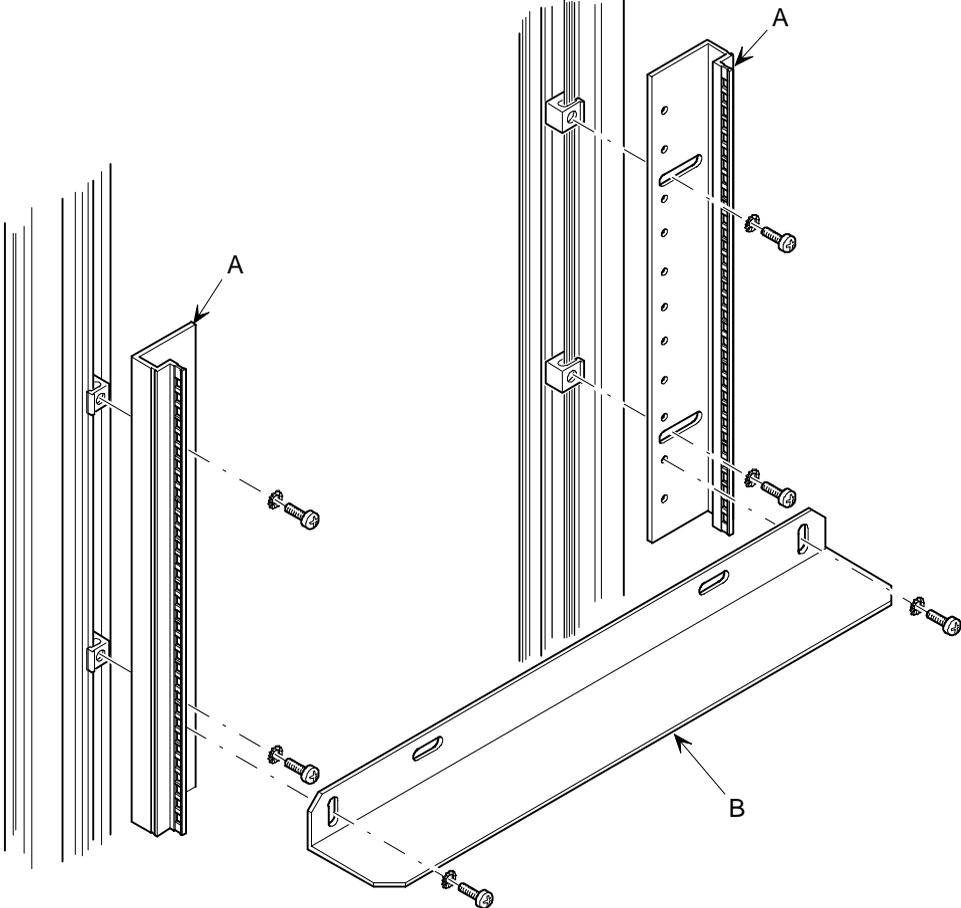
## Mounting BA356 Storage Cabinets

To install BA356 storage cabinets, do the following:

1. Open the front and rear doors.
2. If necessary, adjust all required shelves.
3. Attach the four 19-inch mounting angles at each corner of the rackmount (A, Figure 4-26).
4. Attach the chassis support rail to the 19-inch mounting angles ( B, Figure 4-26).



**NOTE:** The mounting screws are self-threading into the mounting angles and require significant force to thread.

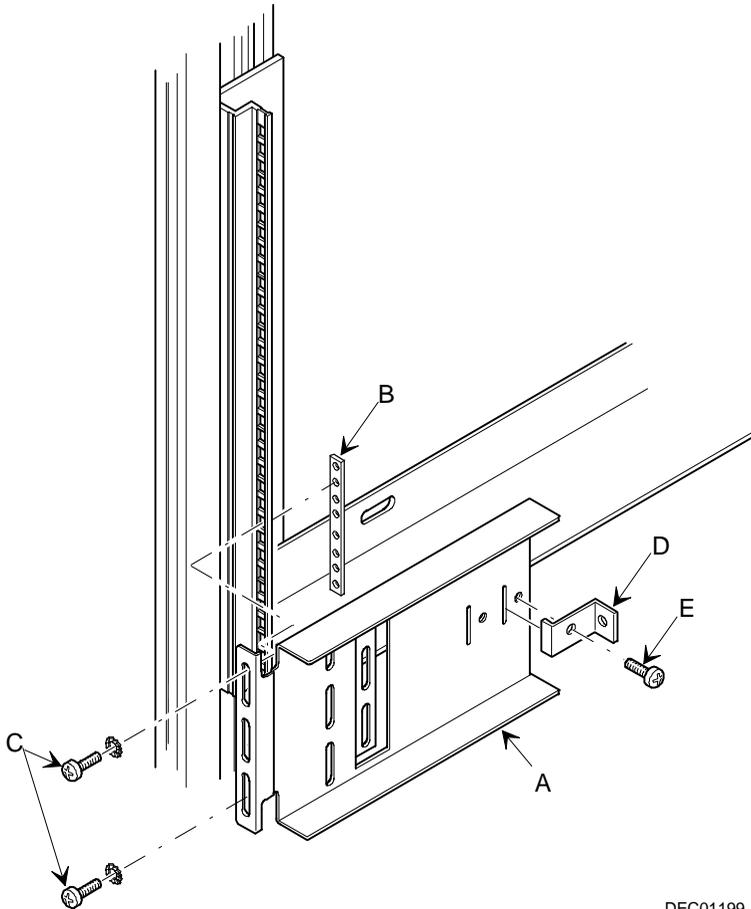


DEC01198

Figure 4-26. Attaching the 19-inch Mounting Angles and Chassis Support Rails

## Mounting Server Components

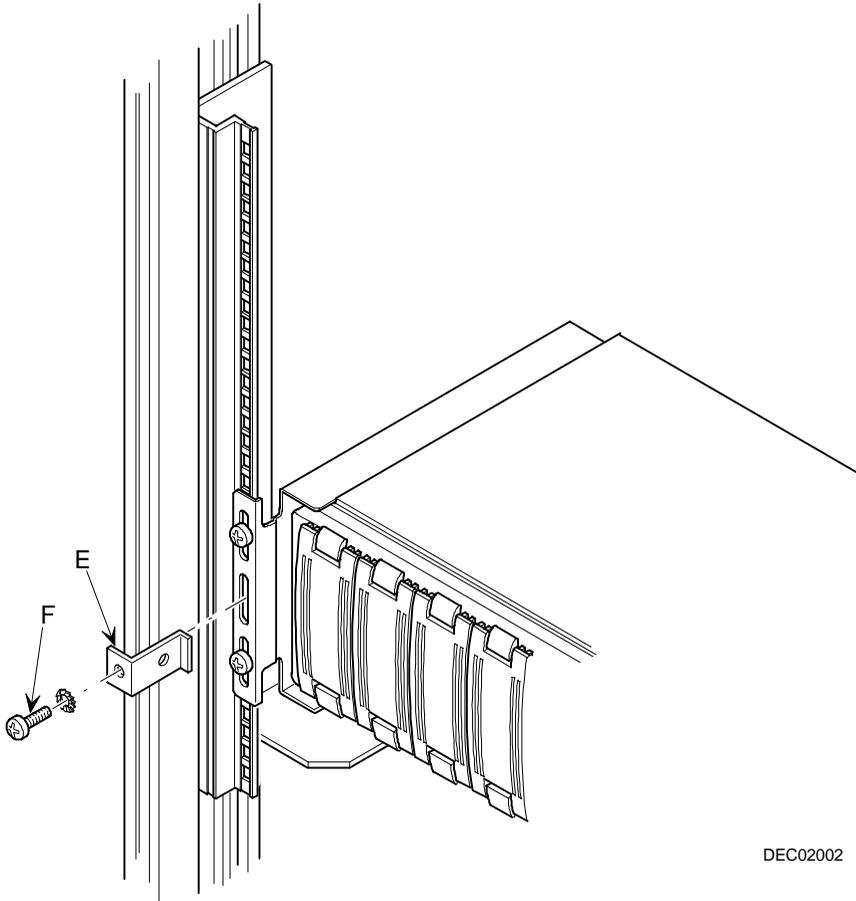
5. Mount the supplied bracket (A, Figure 4-27) to the 19-inch mounting angle by placing the threaded bar behind the 19-inch mounting angle (B, Figure 4-27), and using the supplied screws (C, Figure 4-27).
6. Mount the clamp to the rear of the unit (D, Figure 4-27) with the supplied screw (E, Figure 4-27).



DEC01199

**Figure 4-27. Attaching a BA356 Storage Cabinet Mounting Bracket**

8. Slide the BA356 storage cabinet into the bracket.
9. Mount the clamp (E, Figure 4-28) using the supplied screw (F, Figure 4-28).



DEC02002

**Figure 4-28. Mounting a BA356 Storage Cabinet**

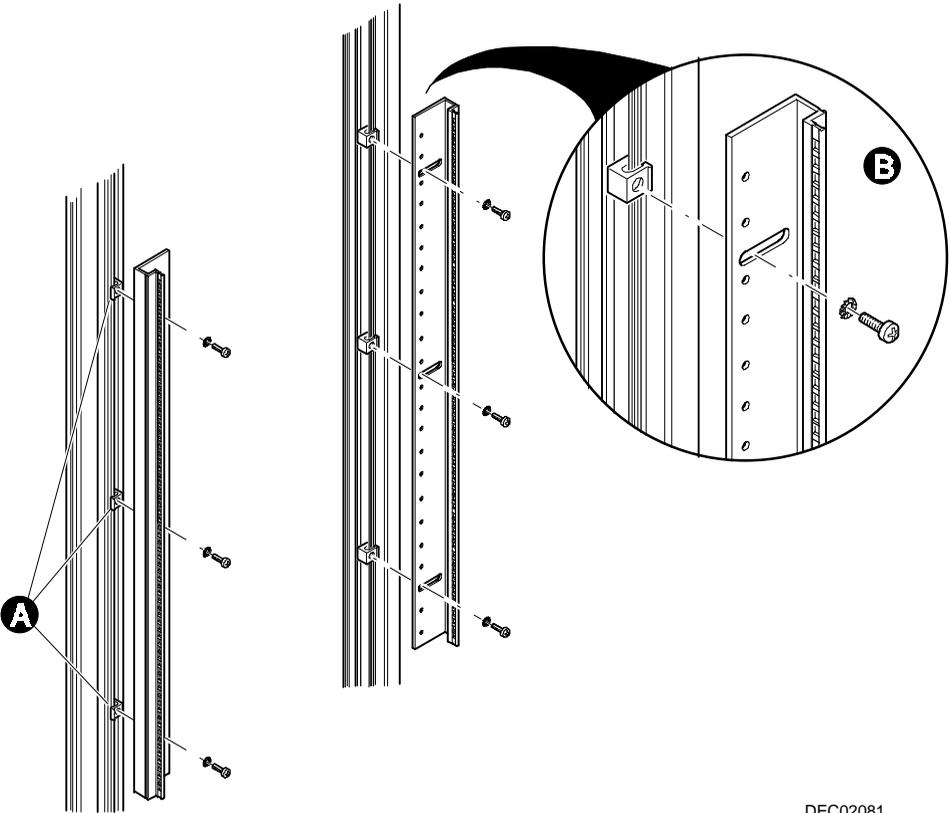
## Mounting BA356 Storage Cabinets (Alternate Method)

To install BA356 storage cabinets, do the following:

1. Open the front and rear doors.
2. Review the rackmount for space availability. Allow a distance of at least 4U for each BA356 storage cabinet.
3. If necessary, attach the four 19-inch mounting angles at each corner of the rackmount (A, Figure 4-29).
4. Attach the chassis support rail to the 19-inch mounting angles ( B, Figure 4-29).



**NOTE:** The mounting screws of the rail installation self-thread into the mounting angles and require significant force to thread.

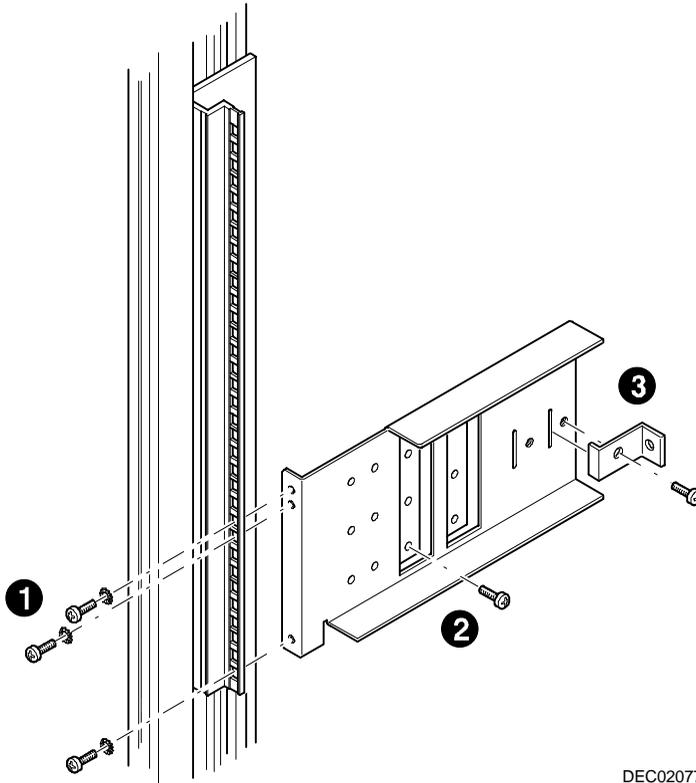


DEC02081

Figure 4-29. Attaching the 19-inch Mounting Angles

## Mounting Server Components

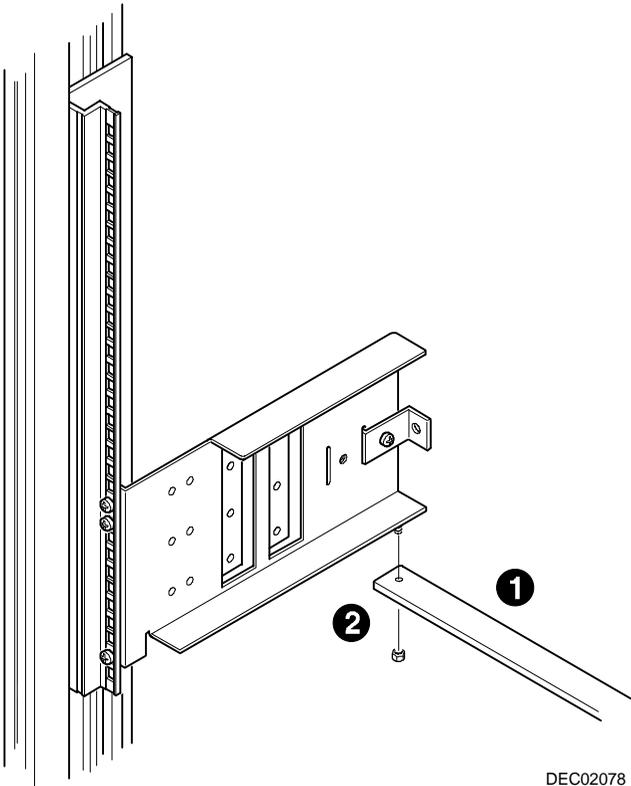
5. Mount the supplied bracket (2, Figure 4-30) to the 19-inch mounting angle by placing the rail behind the 19-inch mounting angle (1, Figure 4-30), and using three self-threaded screws and washers (1, Figure 4-30).



DEC02077

### Figure 4-30. Attaching a BA356 Storage Cabinet Mounting Bracket

6. Mount one clamp at the rear of the unit (3, Figure 4-30) with one screw.
7. Attach the stability bar (1, Figure 4-31) to the rear of the mounting bracket. Insert the bar into the threaded screw attached to the mounting rail assembly (2, Figure 4-31). Use the supplied nut to tighten the bar to the bracket.

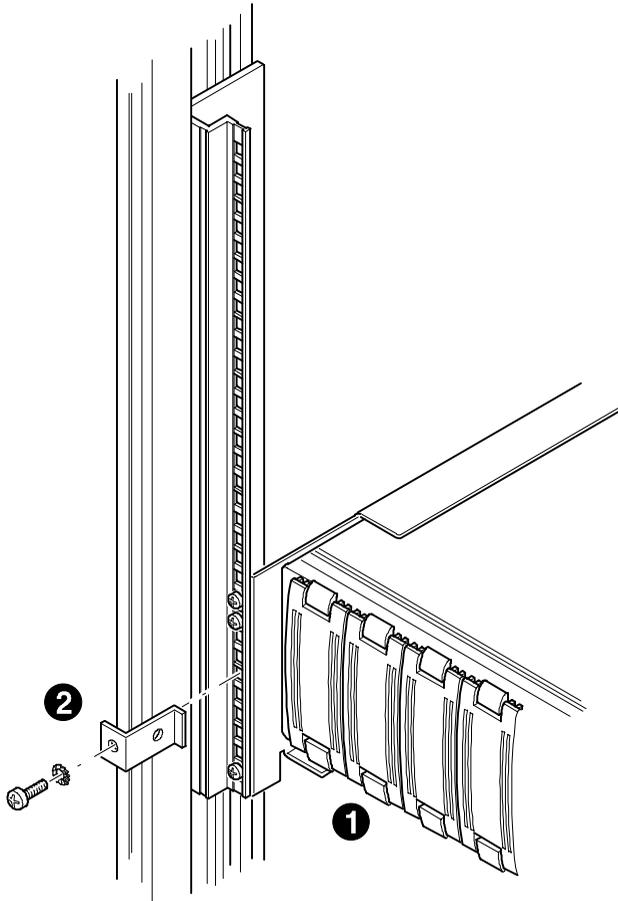


DEC02078

Figure 4-31. Attaching a BA356 Storage Cabinet Mounting Bracket

## Mounting Server Components

8. Slide the BA356 storage cabinet into the bracket (1, Figure 4-32).
9. Mount the clamp to the front of the unit (2, Figure 4-32) using the supplied screw.



DEC02079

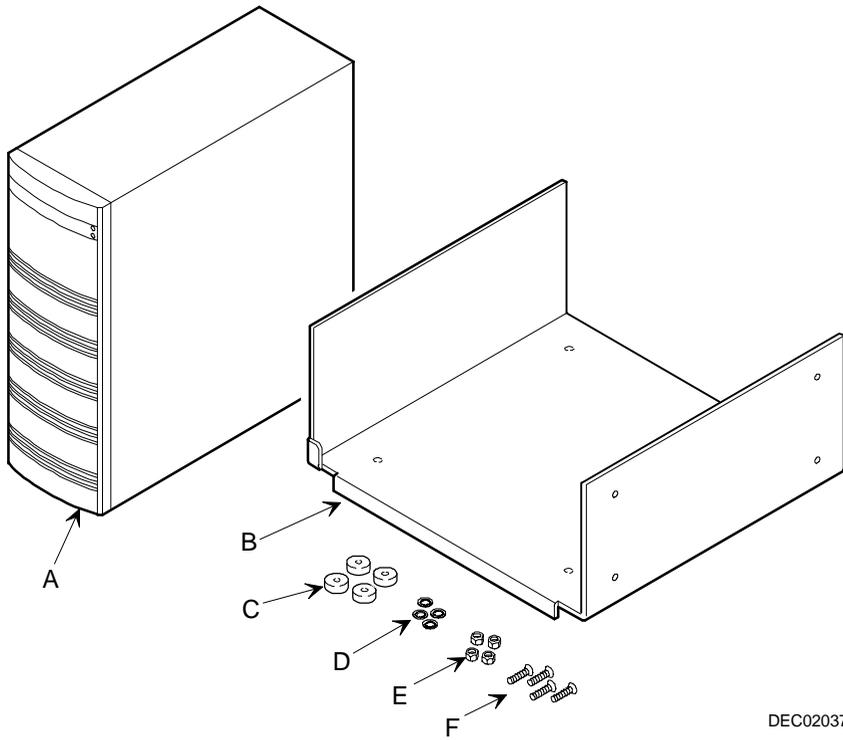
**Figure 4-32. Mounting a BA356 Storage Cabinet**

## Mounting RAID 310 Storage Cabinets

The RAID 310 mounting kit includes hardware necessary to install a RAID 310 tray and storage cabinet onto a universal shelf. The following table identifies each kit part.

<b>Figure Legend</b>	<b>Component</b>
A	RAID 310 storage box
B	RAID 310 tray
C	Aluminum spacers (4)
D	Lock washers (4)
E	Nuts (4)
F	Screws (4)

# Mounting Server Components



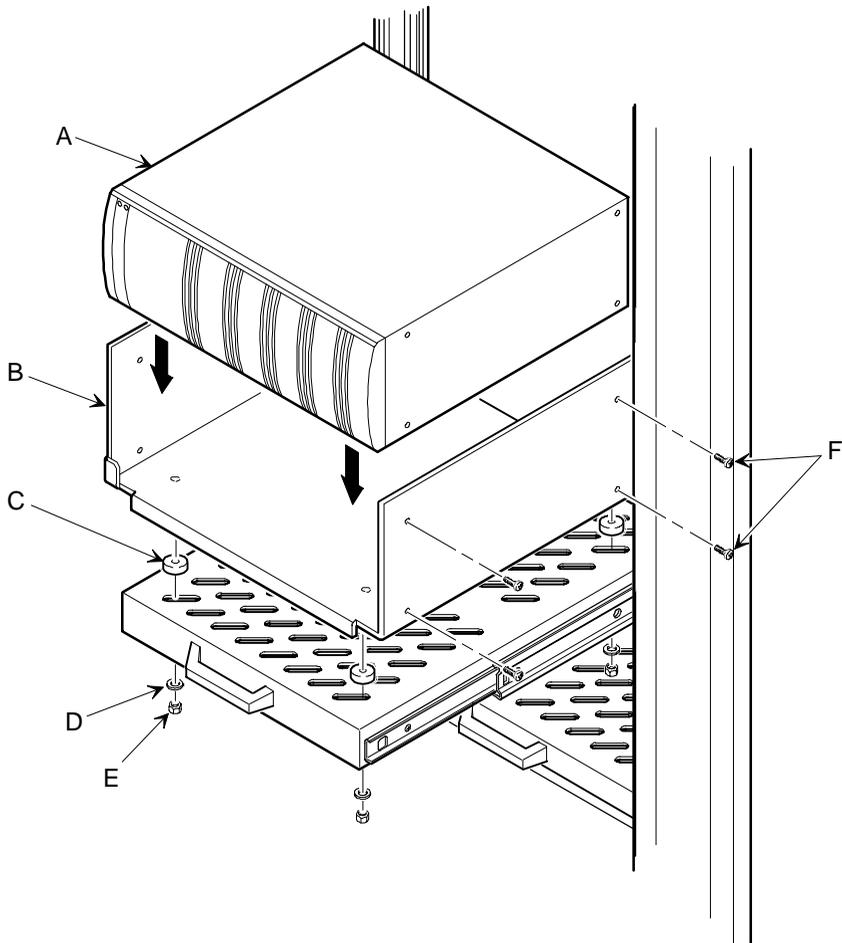
DEC02037

**Figure 4-33. RAID 310 Mounting Kit**

To install RAID 310 cabinets, do the following:

1. Place the RAID 310 tray on the universal shelf to locate the mounting holes.
2. Slightly lift each corner and slide the aluminum spacers over the threaded studs on the bottom of the RAID 310 tray (C, Figure 4-34).
3. Place the four threaded studs on the bottom of the RAID 310 tray through the mounting standoffs and the rackmount shelf holes (B, Figure 4-34).
4. Attach a lock washer and a nut to each threaded stud and tighten (D and E, Figure 4-34).
5. Place the RAID 310 storage cabinet into the RAID 310 tray (A, Figure 4-34).
6. Use the four screws (F, Figure 4-34) to attach and secure the RAID 310 cabinet to the tray.
7. The RAID 310 tray and cabinet are now held securely (A and B, Figure 4-34).

## Mounting Server Components



DEC02000

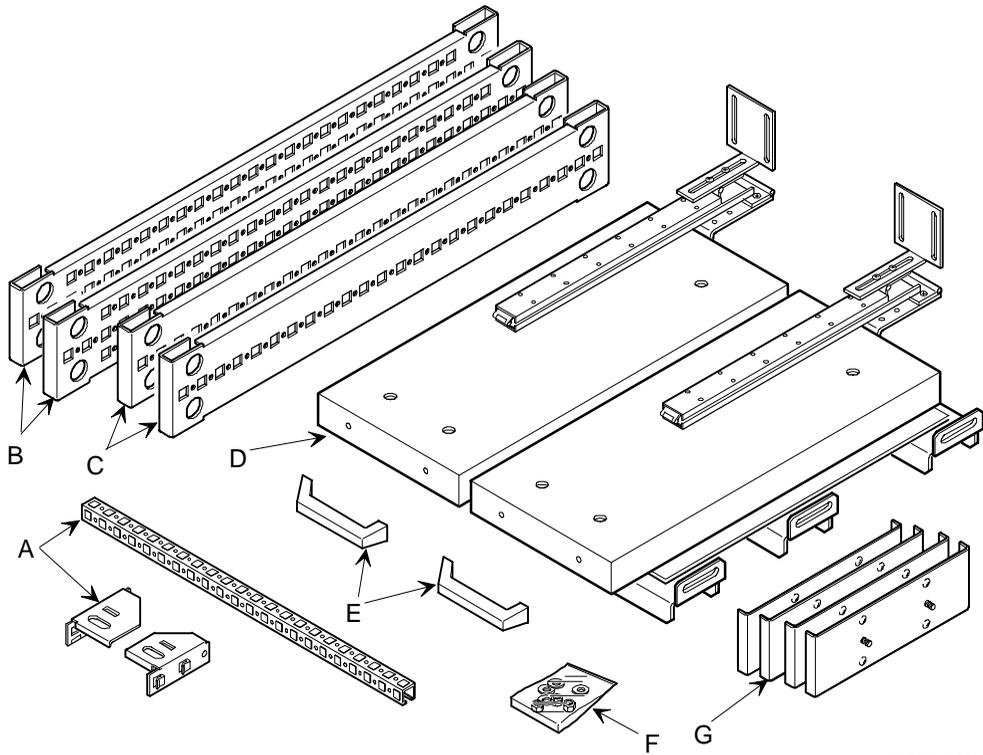
**Figure 4-34. Mounting a RAID 310 Tray and Storage Cabinet**

## Installing a DIGITAL Server 3100/3200 Split Shelf

The DIGITAL Server 3100/3200 requires installation of a special split shelf. The following table identifies each split shelf kit part.

<b>Figure Legend</b>	<b>Component</b>
A	System bar with installing brackets (1)
B	Shelf support bracket for 900mm rackmount (2)
C	Shelf support bracket for 800mm rackmount (2)
D	Split shelf with cable management arms (1)
E	Shelf handles (2)
F	Hardware for assembly
G	Shelf server brackets (4)

## Mounting Server Components



DEC02038

**Figure 4-35. The DIGITAL Server 3100/3200 Split Shelf Kit**

Perform the following procedure to install the DIGITAL Server 3100/3200 split shelf:

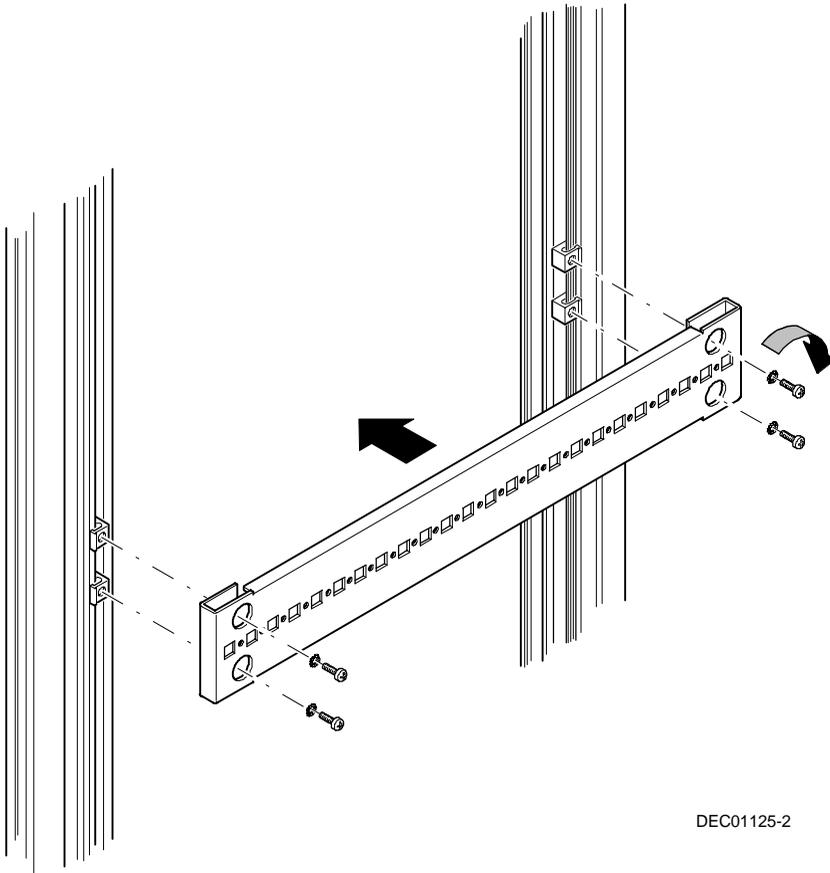
1. Attach the screws that hold the two shelf support brackets to the cabinet using U-nuts.



**CAUTION:** Use a torque value of 4.9 N·m when adding this bracket to prevent skewing of the rackmount.

2. Attach the second bracket making sure it is level with the first bracket. Use the markers located on the rackmount or the dimples (representing 1U increments as a ruler).

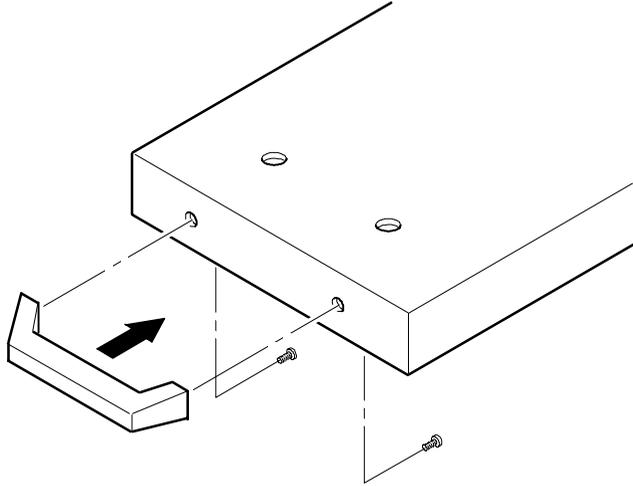
## Mounting Server Components



DEC01125-2

**Figure 4-36. Attach Screws to the Shelf Support Brackets**

3. Using 4 screws (two for each tray), attach the two shelf handles to the sliding trays.

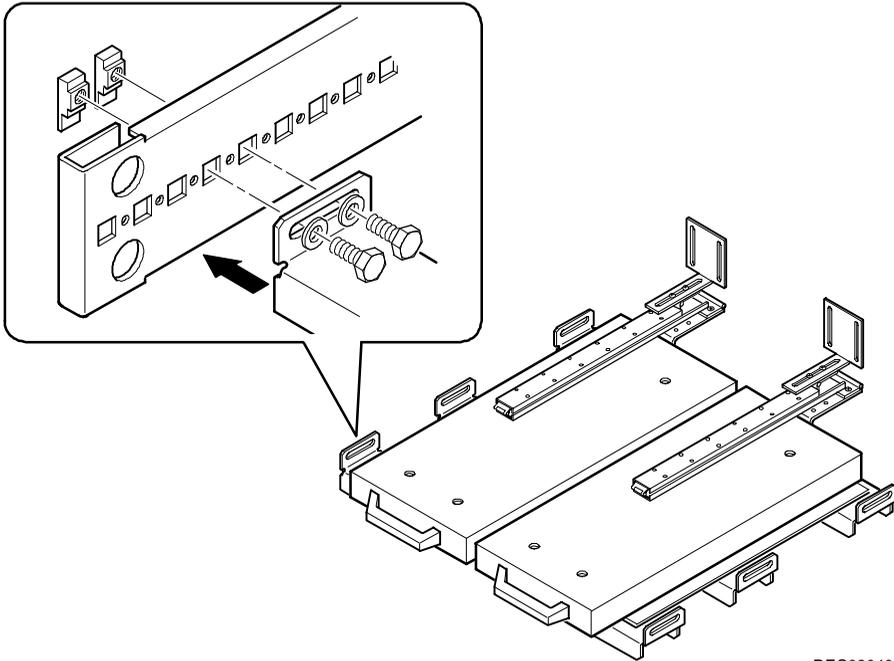


DEC02039

**Figure 4-37. Attach the Shelf Handles**

## Mounting Server Components

4. Attach the split shelf to the two shelf support brackets using the eight bolts and nuts in the kit.

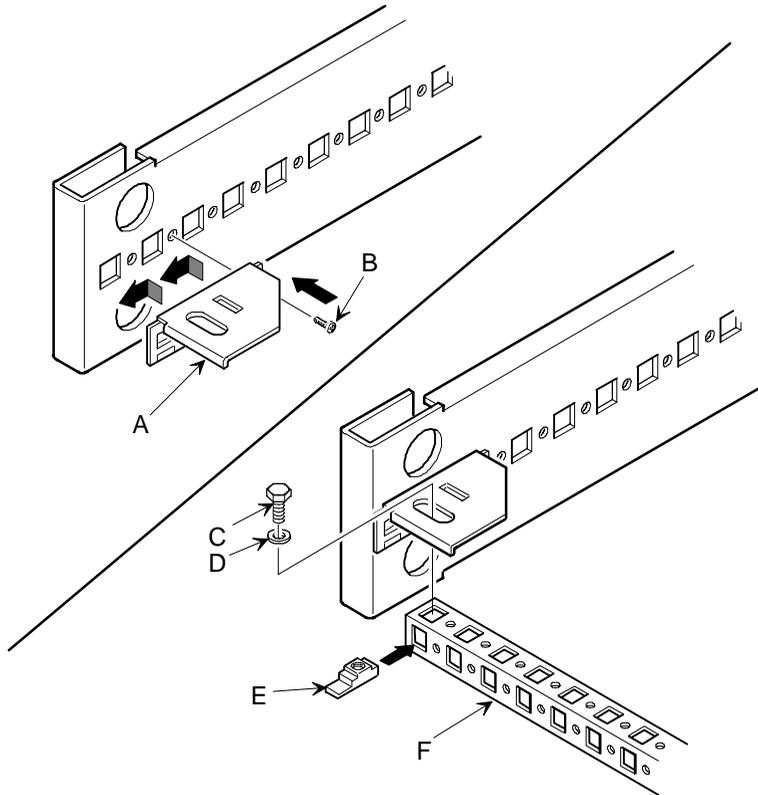


DEC02040

**Figure 4-38. Attach the Split Shelf to the Brackets**

5. Push the two brackets for the system bar in and back to secure (A, Figure 4-39). You may need to tap each bracket into place.

Screw in self tapping screw into shelf support brackets (B, Figure 4-39). Using two flat washers (D, Figure 4-39), bolts (C, Figure 4-39), and threaded blocks (E, Figure 4-39), install the system bar (F, Figure 4-39) onto the back of the shelf support brackets.



DEC02041

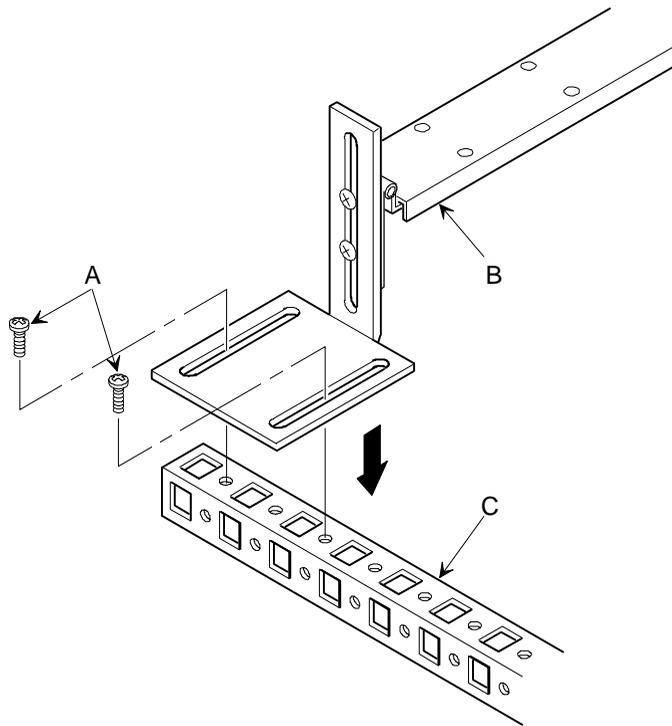
**Figure 4-39. Secure System Bar Brackets**

## Mounting Server Components

- Using two self tapping screws (A, Figure 4-40), attach the back bracket of the cable management arm (B, Figure 4-40) to the system bar (C, Figure 4-40).



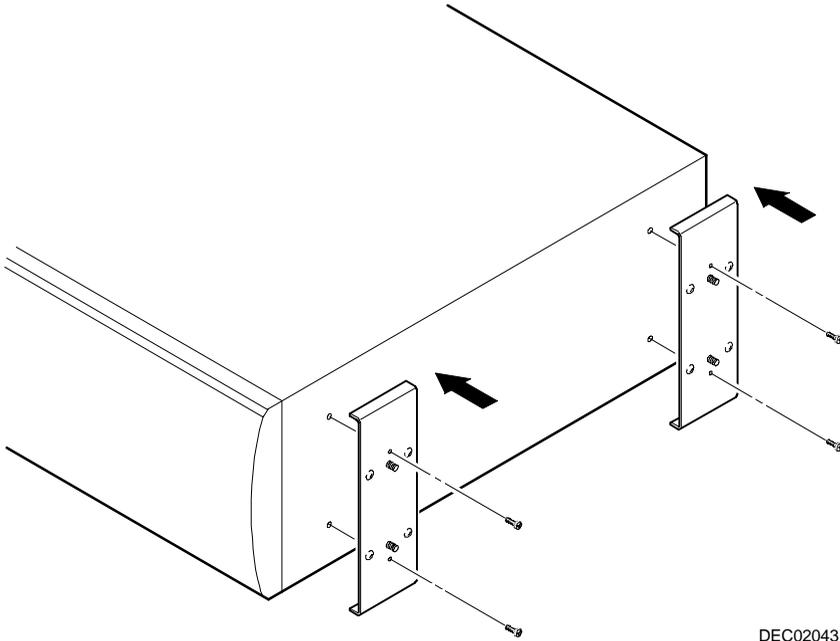
**NOTE:** The cable management arm should line up straight between the tray and the management arm. The arm may be adjusted by moving the back bracket up or down, or backward or forward. You may also adjust the arm from the bracket attached to the tray.



DEC02042

**Figure 4-40. Attach Back Cable Management Arm**

7. Attach the two brackets to the bottom of the server using the four screws contained in the kit.

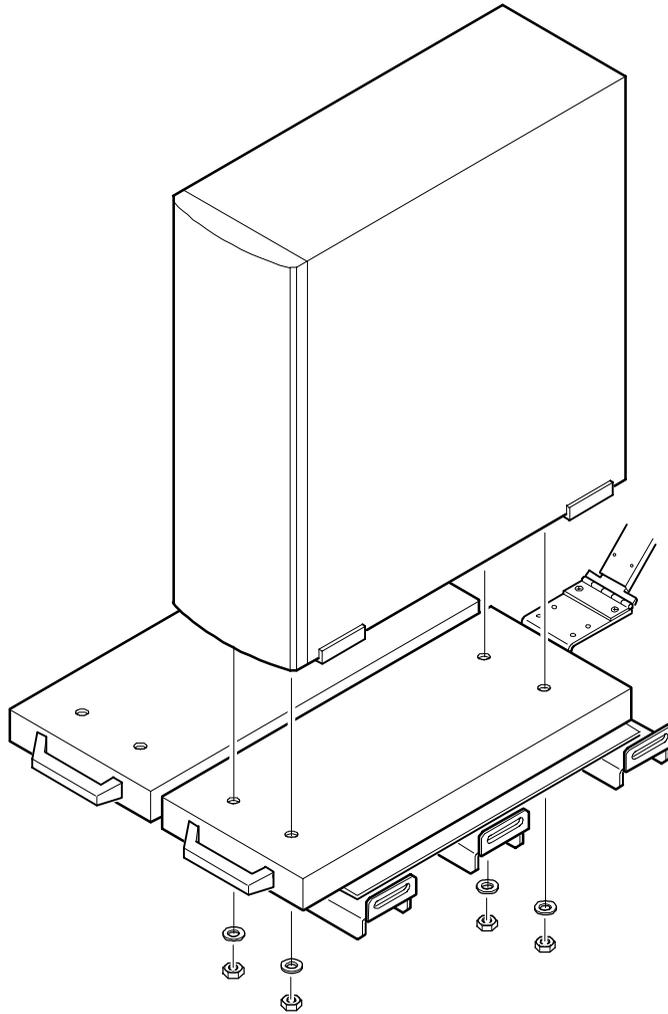


DEC02043

**Figure 4-41. Attach Bottom Brackets**

8. With the two brackets on the bottom of the server, push the four threaded studs through the four holes in the tray. Use four brass washers and nuts to attach the server to the tray.

## Mounting Server Components



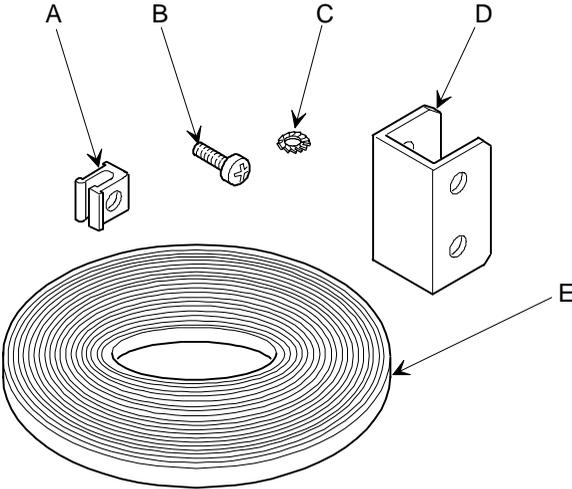
DEC02044

**Figure 4-42. Attach Server to Tray**

# Connecting Rackmount Bays Together

Larger structures can be constructed by combining two or more rackmount bays together. The following table identifies each part.

Figure Legend	Component	Quantity
A	U-nuts	24
B	Screws	24
C	Lock washers	24
D	Baying brackets	6
E	Foam tape	1 roll



DEC02045

Figure 4-43. Rackmount Bay Connection Kit

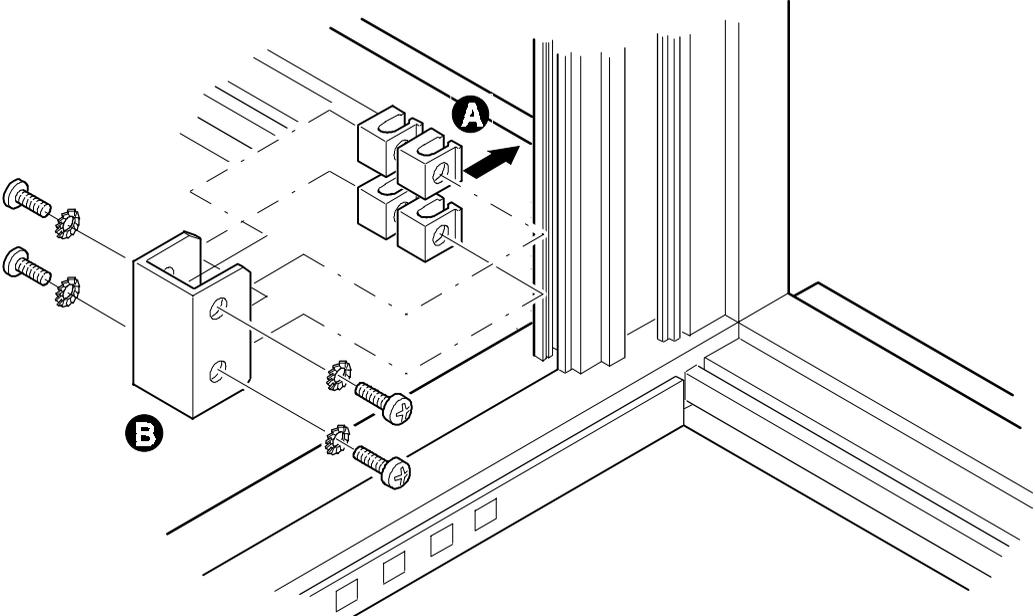
## Mounting Server Components

To connect two or more rackmounts together, perform the following procedure:



**NOTE:** Before you begin, make sure the rackmounts are level with each other.

1. Open the front and rear doors of the rackmounts.
2. Remove the side panels from the sides that will be joined.
3. Position the rackmounts next to each other.
4. Place foam tape on the insides of the front and back of the rackmounts where they will join together.
5. Install 24 U-nuts: four at the bottom, four at the middle, and four at the top of the both the front and rear of the rackmount (A, Figure 4-44).
6. Install the six baying brackets over the U-nuts and secure with the screws (B, Figure 4-44).



DEC02001

Figure 4-44. Connecting Rackmounts Together

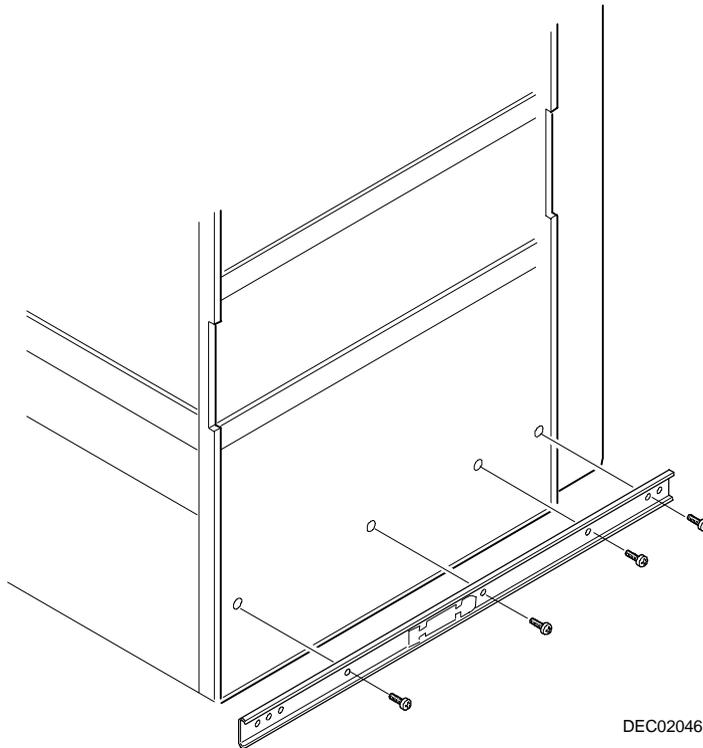
## Installing the RAID 450 Storage Cabinet

Perform the following steps to install the RAID 450 storage cabinet.



**WARNING:** The RAID 450 storage cabinet is heavy. Use two people to install it. You must mount the RAID 450 storage cabinet on the bottom of the rackmount.

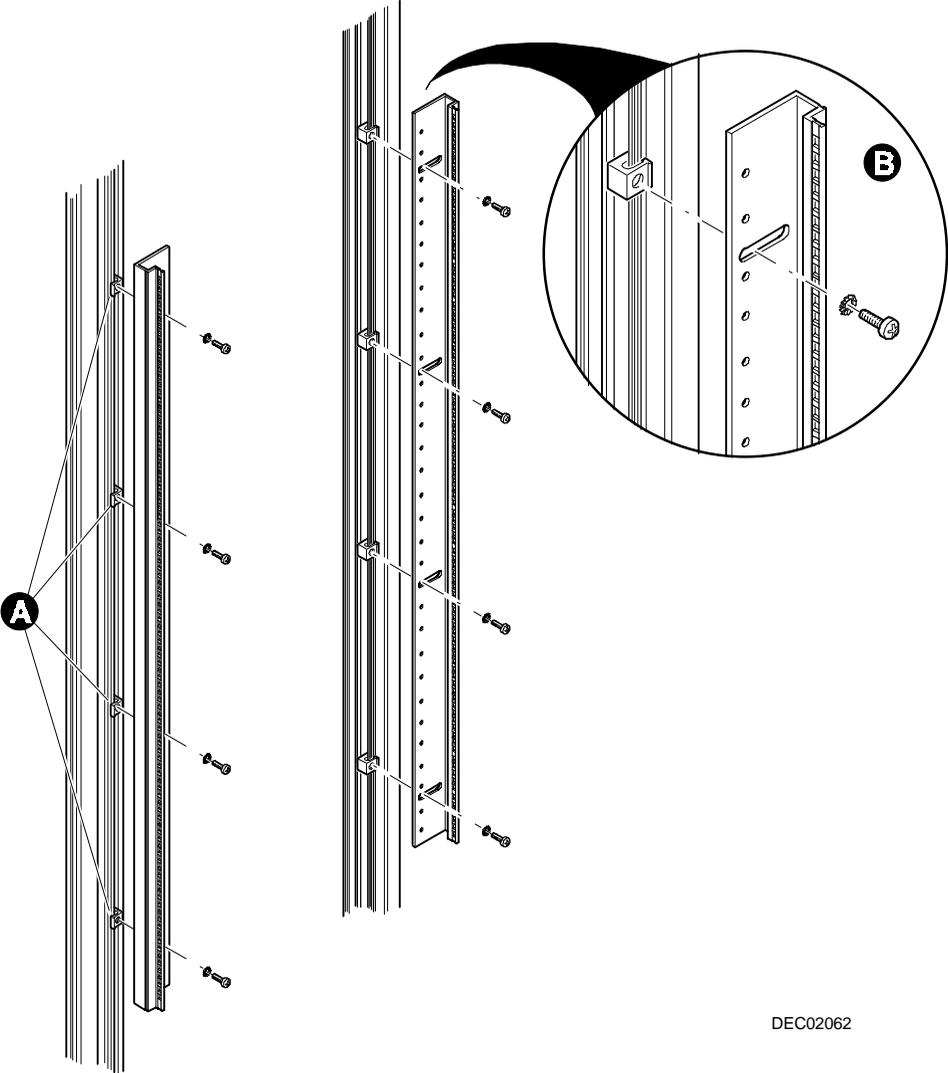
1. Attach two slide attachments to each side of the storage cabinet.



DEC02046

**Figure 4-45. Attach Slide Attachments**

2. Attach two mounting angles to the front, and two to the back of the cabinet.

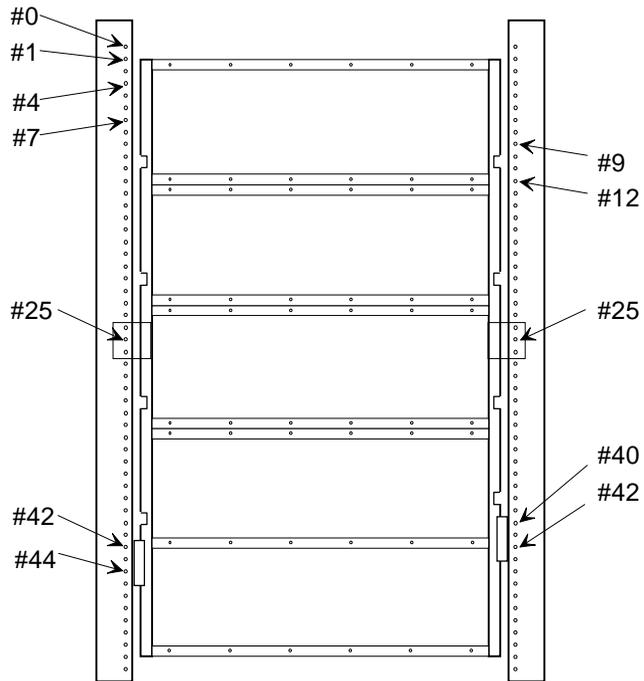


DEC02062

Figure 2-46. Attach Mounting Angles

## Mounting Server Components

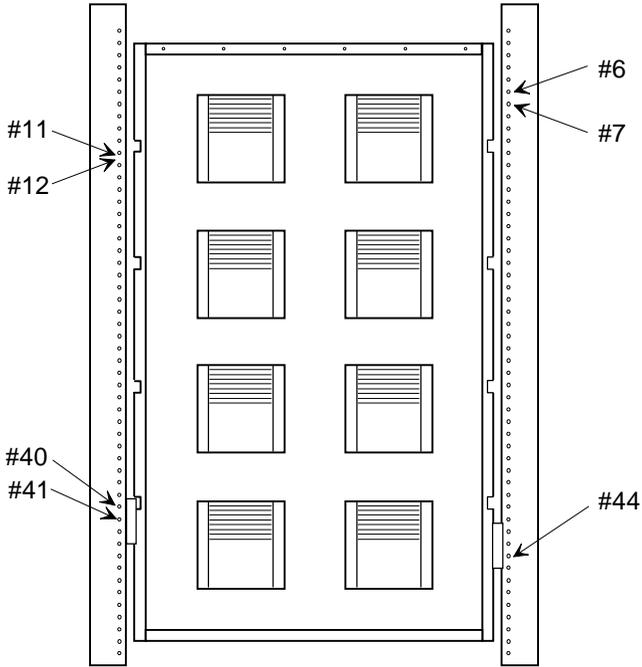
3. Select the proper hole placements. See Figure 4-47 for the front of the cabinet and Figure 4-48 for the rear of the cabinet.



DEC2050A

**Figure 4-47. Front of Cabinet**

Mounting Server Components

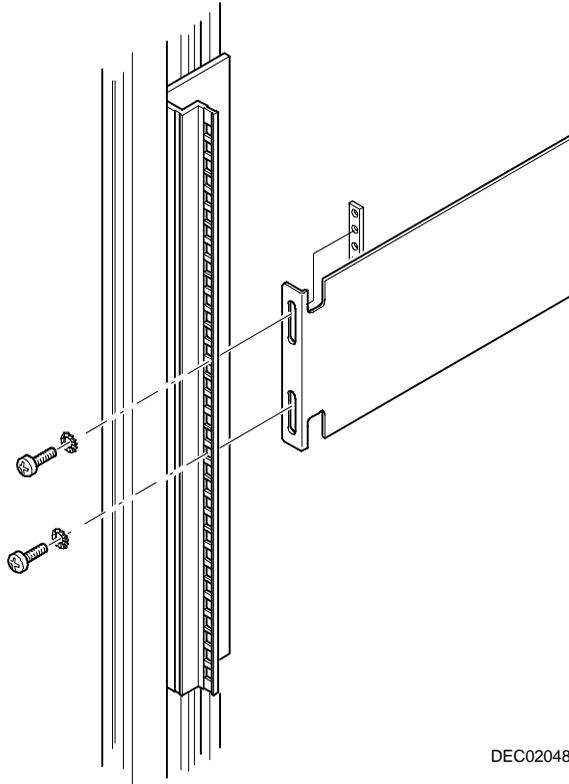


DEC2050B

Figure 4-48. Rear of Cabinet

## Mounting Server Components

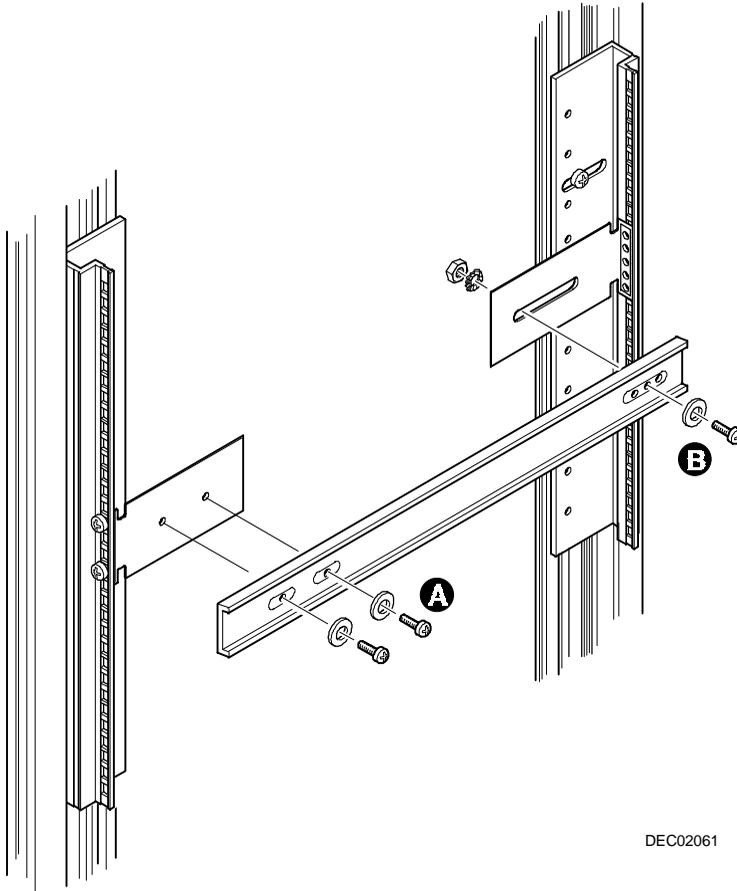
4. Attach the two slide rails to each side using the locations shown in step 3.



DEC02048

**Figure 4-49. Attach Slide Rails (Rear View)**

5. Attach the slide rails as shown in Figure 4-50.
  - a. Insert and secure two front screws into the mounted nuts (A, Figure 4-50).
  - b. Insert and secure one rear screw with the supplied washers and nuts (B, Figure 4-50).



DEC02061

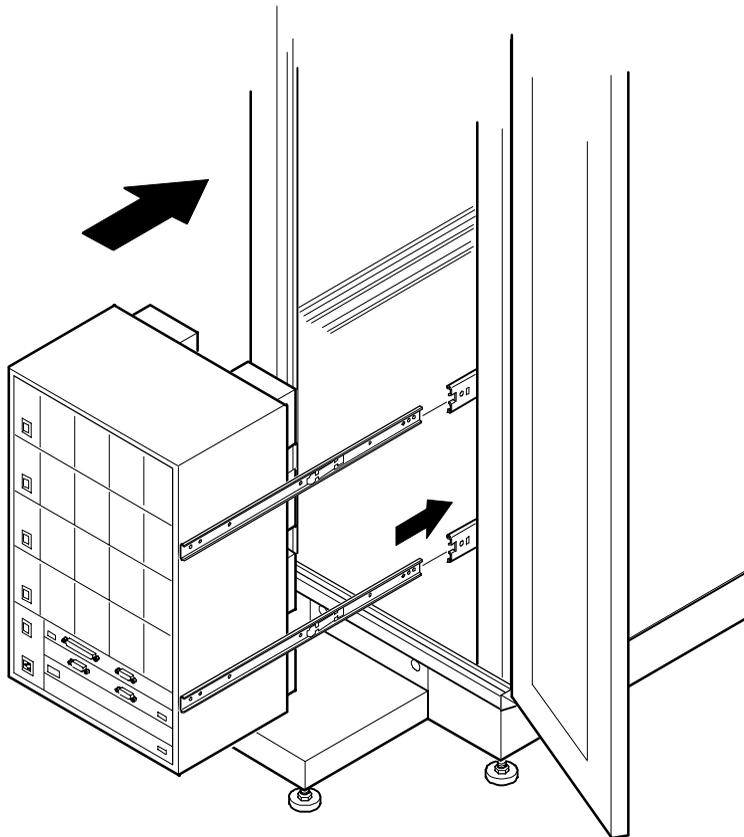
**Figure 4-50. Attach Slide Rails**

## Mounting Server Components

6. With at least two people, lift the RAID 450 storage cabinet. Connect the internal part of the slides (the ones that are attached to the cabinet) to the external part of the sliding rails (the ones that are attached to the rackmount) and then push the unit to the rear until it stops.



**CAUTION:** When installing two units back-to-back, install the front one first. Failure to do so might cause equipment damage.



DEC02049

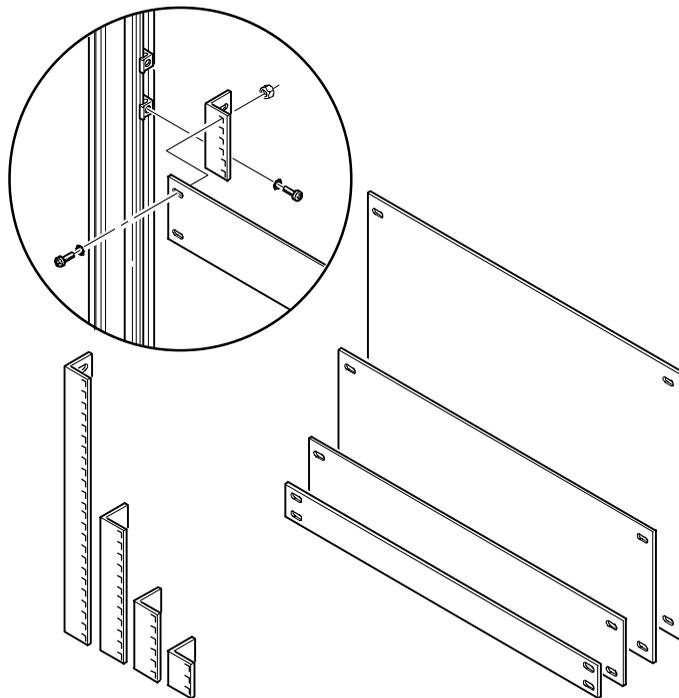
**Figure 4-51. Install a RAID 450 Storage Cabinet on Sliding Rails**

## Installing Blanking Panels

Four blanking panels are available that allow you to cover unused space in the front of the rackmount. These blanking panels are currently available: 1U, 2U, 4U, and 8U.

To cover unused space with a blanking panel do the following:

1. Measure the opening.
2. Pick out a blanking panel that fits.
3. Attach the bracket to the panel.



DEC02051

**Figure 4-52. Blanking Panel Installation**

# Connecting Components **5**

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## Introduction

This chapter describes how to connect your DIGITAL Servers, monitor, keyboard, and mouse to the console. Note that the following procedures are using a DIGITAL Server 7100 as an example, your specific configuration might differ.



**NOTE:** The intent of this section is to provide an overview of connecting DIGITAL Servers to a console. For more detailed information, refer to the supplied Master Console User's Manual.

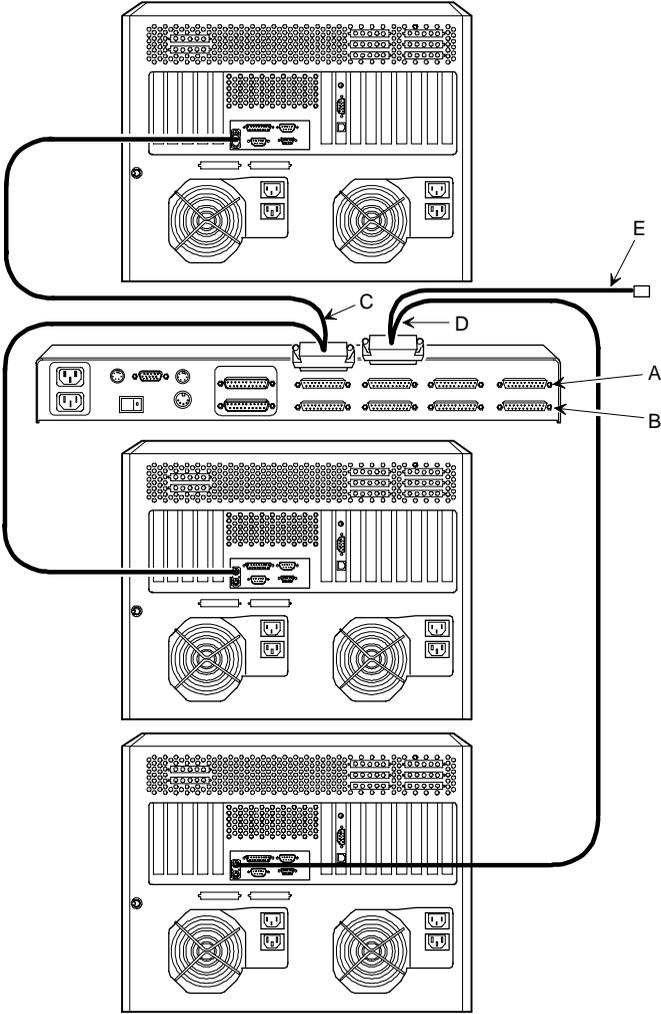
## Connecting the PS/2 Mouse Cable

To connect the PS/2 mouse cable to your server or console, do the following:

1. Open the rear door.
2. Connect the PS/2 mouse cable connector (C, Figure 5-1) to the left-most PS/2 mouse port (A, Figure 5-1) at the rear of the 8-port console.
3. Insert the loose ends of the PS/2 mouse cable (C, Figure 5-1) into the mouse ports at the rear of the top and middle servers.
4. Connect the PS/2 mouse cable connector (D, Figure 5-1) to the PS/2 mouse port just to the right of the previous connection at the rear of the console.
5. Connect one end of the PS/2 mouse cable (D, Figure 5-1) to the bottom server. The other end of the cable (E, Figure 5-1) is not used (a DIGITAL Server 7100 is used as an example). Each cable kit supports two servers.



**NOTE:** Mouse ports (B, Figure 5-1) are not used in this example.



DEC01131

Figure 5-1. Connecting the PS/2 Mouse Cable

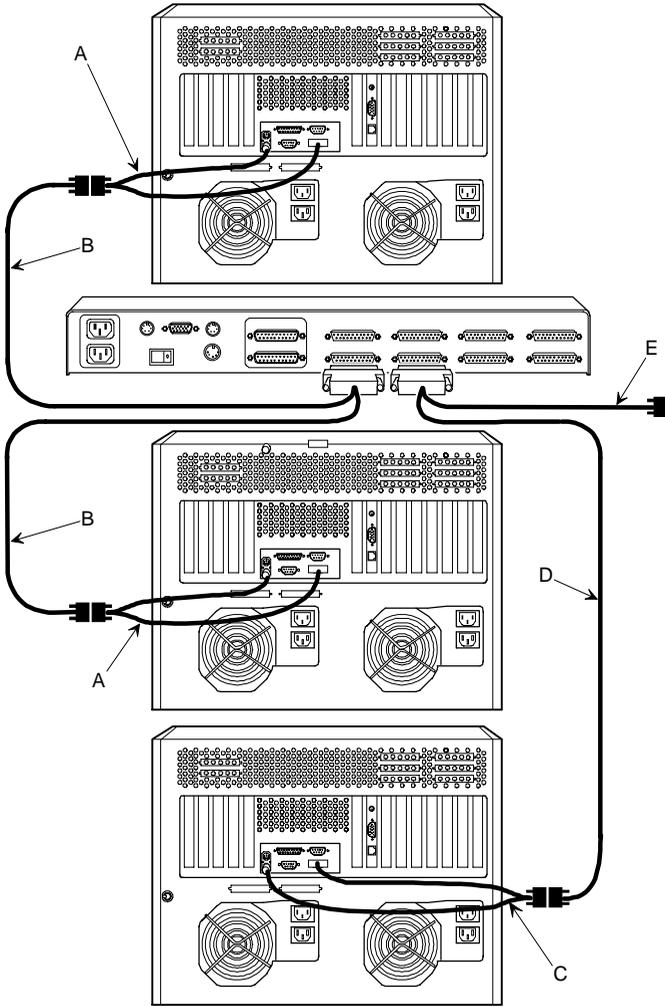
## Connecting the Video and Keyboard Cable

To connect the video and keyboard cable to your server or console, do the following:

1. Open the rear door.
2. Connect the top video and keyboard cable (A, Figure 5-2) to the video and keyboard ports at the rear of the top and middle servers (a DIGITAL Server 7100 is used as an example).
3. Connect the other end of the top video and keyboard cable to the mating console video/keyboard cable (B, Figure 5-2).
4. Connect the mating console video and keyboard cable to the CH1/CH2 connector at the rear of the console.
5. Connect the second video and keyboard cable (C, Figure 5-2) to the video and keyboard ports at the rear of the bottom server.
6. Connect the other end of the second video and keyboard cable to the second mating console video and keyboard cable (D, Figure 5-2).
7. Connect the second console video and keyboard cable to the CH3/CH4 connector at the rear of the console. Note that item E in Figure 5-2 is not used.



**NOTE:** A single cable supports two servers. Make sure that the server designated as #1 is connected to the Channel 1 connector for the keyboard and monitor.



DEC01132

Figure 5-2. Connecting the Video/Keyboard Cables

## Connecting A Remote MasterConsole (Single)

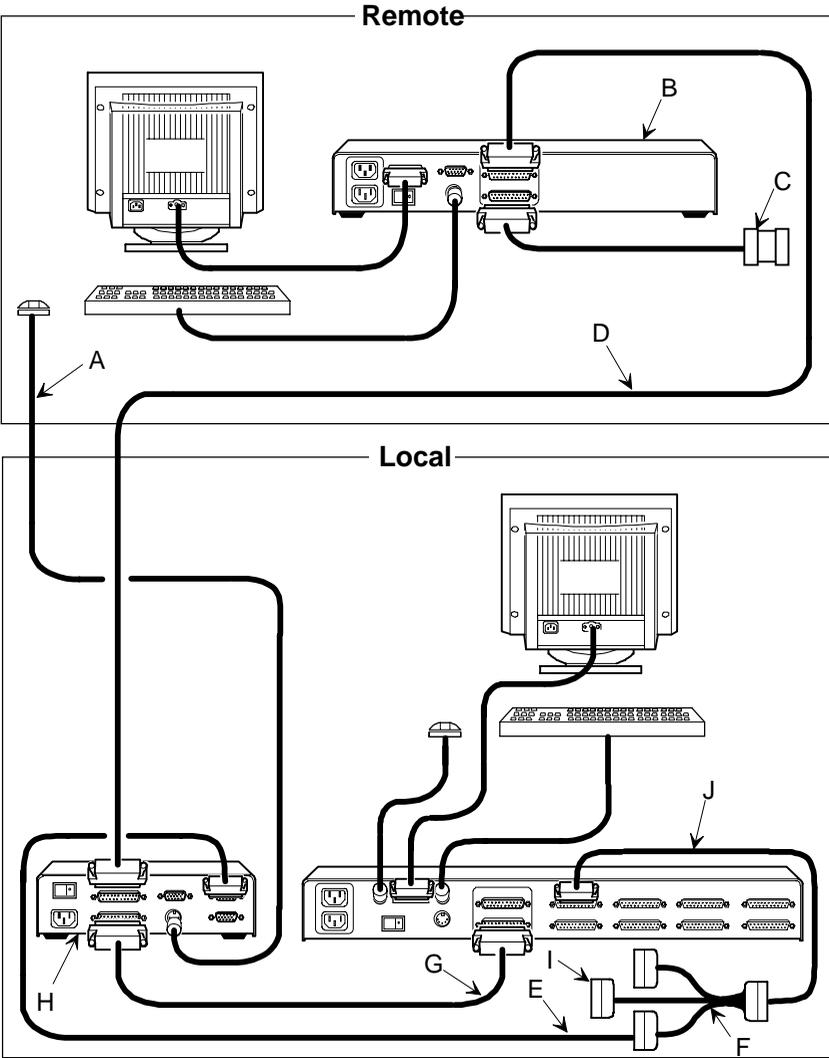
A MasterConsole Remote panel (MCPRMT) may be connected to a MasterConsole as follows. For more information on connecting RemoteMaster consoles, see the *MasterConsole User's Manual*.

### Cable Kit MCPRMT16M for Single Remote MasterConsole (Remote)

Figure Legend	Component
A	CEXPS16M (16 meter cable)
B	MasterConsole Remote (MCRMT)
C	BKTRM (terminator)
D	CBKV16M (16 meter cable)

### Cable Kit MCPRMT16M for Single Remote MasterConsole (Local)

Figure Legend	Component
E	CBLMS18 (18 meter cable)
F	AMCPX3 (split cable)
G	CCKRV18 (18 meter cable)
H	MasterConsole Driver (MCDRV)
I	CKPSddm to PCs of CH1 and CH2
J	PS2 mouse and bank I/O



DEC02053

Figure 5-3. Connecting a Remote MasterConsole

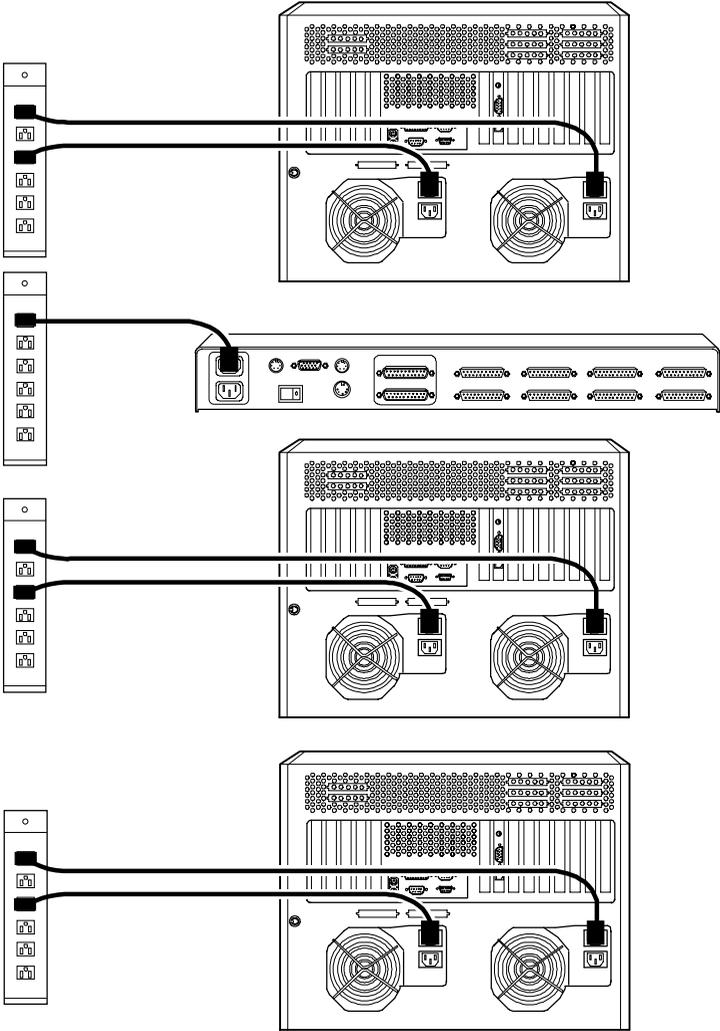
## Connecting the Power Cords

Connect the power cords to the servers and console as shown in Figure 5-4. Connect the power cords to the servers first, then connect the other end of the power cords to the distribution panel.



**NOTE:** To maximize power supply redundancy, connect the power supply cords for each server to different power sources.

*Refer to Chapter 6, “Power Requirements,” for information on how to connect power to your rackmount configuration.*



DEC01134

Figure 5-4. Connecting Power Cords

## Cabinet Grounding

The cabinet grounding kit contains pre-cut and crimped wires of various lengths with a combination of open end, slide, and round end crimps. The following table identifies each kit part.

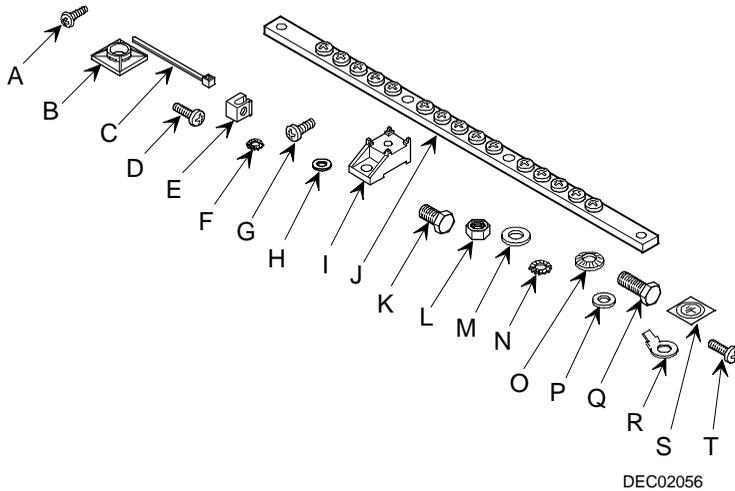


**NOTE:** Many of the parts may not be needed or can be used at a later time.

Figure Legend	Component	Quantity
A	5x12	2
B	Tie wrap holder	10
C	Tie wrap	10
D	M6x16	2
E	U-nut	2
F	A6.4	4
G	S15.5x13	2
H	A6.4	2
I	Plastic ground strip mount	2
J	Ground strip	1
K	M8x15	1
L	M8	1
M	A8.4	1
N	A8.4	1

*continued*

Figure Legend	Component	Quantity
O	M8	2
P	A8.4	2
Q	M8x20	2
R	Crimp	6
S	Ground decal	2
T	M6x16 mounting screw	2



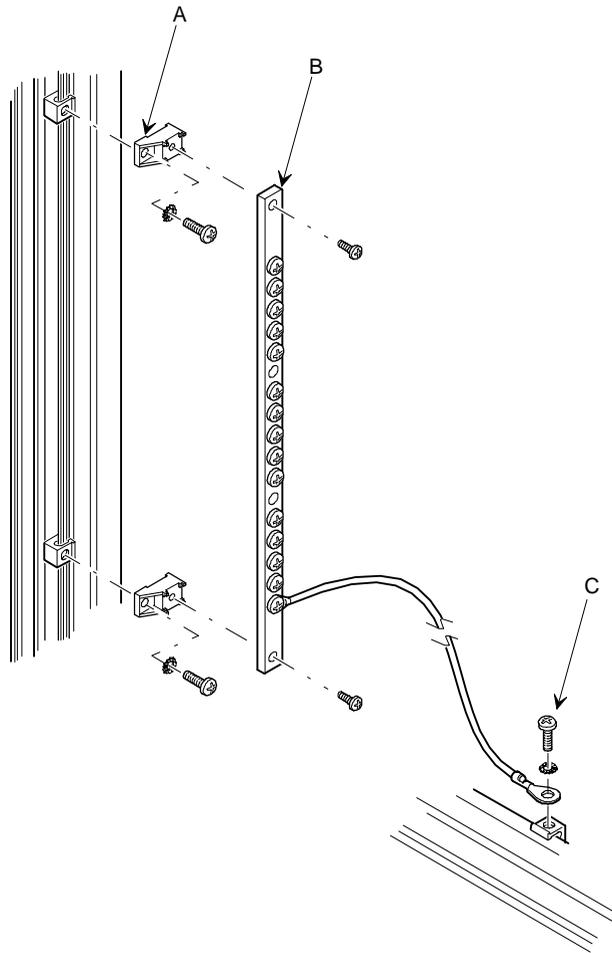
**Figure 5-5. Cabinet Grounding Kit**

Use the following procedure to connect the ground strip to your cabinet:

1. Screw the plastic ground strip mounts (A, Figure 5-6) to the cabinet frame using U-nuts.
2. Attach and screw the ground strip (B, Figure 5-6) to the mounts.

## Connecting Components

3. Connect one of the ground wires (C, Figure 5-6) to the cabinet frame by using a U-nut.

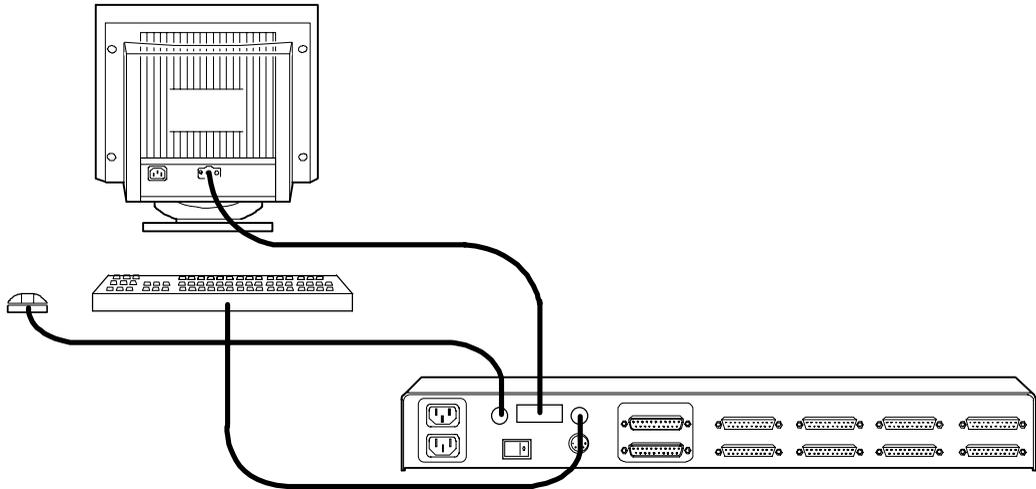


DEC02057

**Figure 5-6. Grounding the Cabinet**

## Connecting the Monitor, Keyboard, and Mouse to a Console

Figure 5-7 shows how to connect the monitor, keyboard, and mouse to the console.



DEC01135

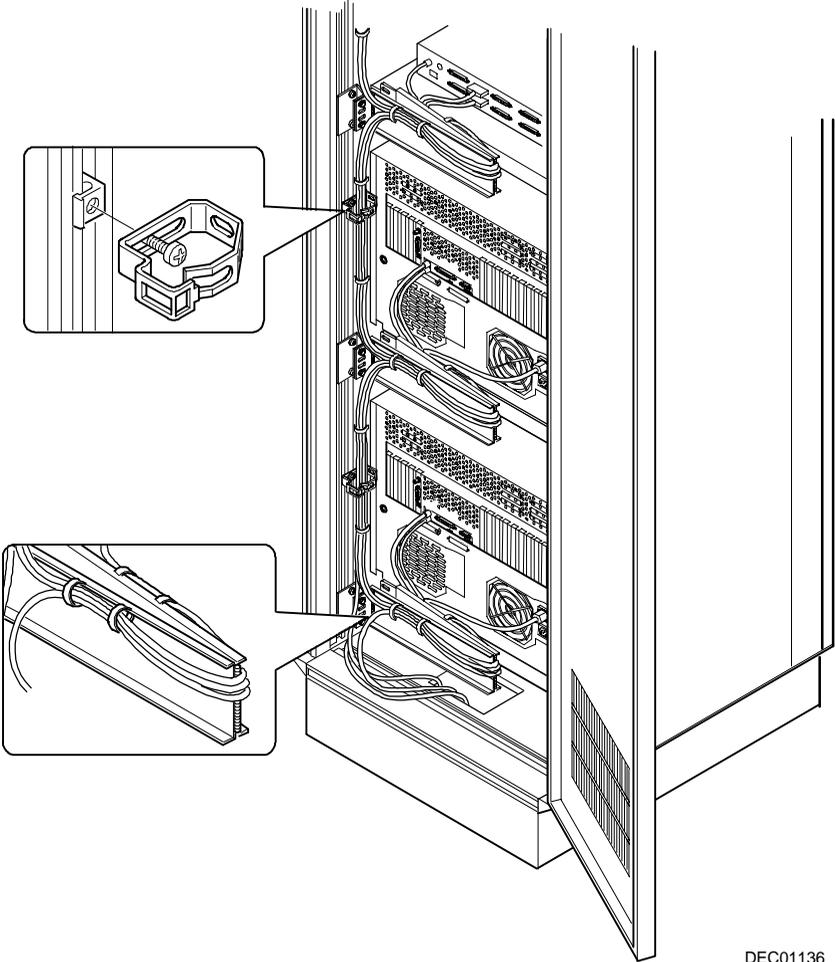
**Figure 5-7. Connecting the Monitor, Keyboard, and Mouse**

## Routing your Cables

Figure 5-8 shows how to route your cables after connecting your DIGITAL Servers, monitor, console, keyboard, and mouse.



**NOTE:** The cable management arm has holes that are used to secure the cables with the tie-wraps. This ensures that the cables are not damaged when the shelf is pulled out.



DEC01136

**Figure 5-8. Rackmount Cable Routing**

# Power Requirements

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# 6

## Introduction



**WARNING:** Do not overload the ac power circuit that provides power to the rackmount. Contact the electrician responsible for your facility wiring and installation requirements.

You must have the electrician responsible for your facility wiring to:

- Supply ac power
- Provide power distribution
- Connect the rackmount's top mounted fans
- Connect a UPS (optional)
- Provide an earth ground for the rackmount (an earth grounding kit came with your rackmount)



**NOTE:** All wiring is country-dependent and should be performed by a qualified electrician.

## Power Ratings

Server/Storage Device	Voltage Range (V ac)	Voltage Maximum (V ac)	Rated Input Current (A) <sup>(1)</sup>	Operation Frequency Range (Hz)
DIGITAL Server 3100/3200	100 - 120 220 - 240	88 - 132 176 - 264	7 3.5	47 - 63 47 - 63
DIGITAL Server 3100R/3200R	100 - 120 220 - 240	88 - 132 176 - 264	7 3.5	47 - 63 47 - 63
DIGITAL Server 3300R	100 - 120 220 - 240	88 - 132 176 - 264	7 3.5	47 - 63 47 - 63
DIGITAL Server 5100/5200	100 - 120 220 - 240	90 - 135 180 - 265	9.5 5	47 - 63 47 - 63
DIGITAL Server 7100	100 - 120 220 - 240	90 - 135 180 - 265	9.5 5	47 - 63 47 - 63
DIGITAL Server 7100R	100 - 120 220 - 240	90 - 132 180 - 264	10 5	47 - 63 47 - 63
DIGITAL Prioris LX Server	100 - 120 220 - 240	88 - 132 176 - 264	6 3	47 - 63 47 - 63
DIGITAL Prioris XL Server	100 - 120 220 - 240	88 - 132 176 - 264	7 3.5	47 - 63 47 - 63
RAID 310	100 - 240 <sup>(2)</sup>	100 - 240	---	50 - 60
RAID 450	100 - 240 <sup>(2)</sup>	100 - 240	---	50 - 60

(1) Includes outlet current

(2) Switching power supply

# Rackmount Systems and Options List

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## Rackmount 900mm Enclosure (Base Configurations)

Part Number	Description
FR-PCSRA-RC	Rackmount (81-inch H/42U) 115 V ac RETMA 900mm deep
FR-PCSRA-RD	Rackmount (81-inch H/42U) 240 V ac RETMA 900mm deep
FR-PCSRA-RA	Rackmount 230 V ac RETMA 800mm deep with side panels and shelves
FR-PCSRA-RB	Rackmount 230 V ac RETMA 800mm deep
FR-PCSRA-RM	Rackmount 115 V ac RETMA 800mm deep without side panels, with shelves
FR-PCSRA-XA	Rackmount 115 V ac RETMA 800mm deep
FR-PCSRA-RN	Rackmount 115 V ac with side panes and shelves

## Rackmount Mounting Options

<b>Part Number</b>	<b>Description</b>
FR-PCSRA-CT	BA356 mounting kit
FR-PCSRA-CS	19-inch steel mounting angles (12U)
FR-PCSRA-DP	19-inch steel mounting angles (4U)
FR-PCSRA-DZ	19-inch steel mounting angles (2U)
FR-PCSRA-DJ	800mm chassis support rails
FR-PCSRA-EP	900mm chassis support rails
FR-PCSRA-EA	19-inch mounting angle (17U) for RAID 450 rackmount

## Rackmount Shelf Options

<b>Part Number</b>	<b>Description</b>
FR-PCSRA-CI	Universal shelf (1U)
FR-PCSRA-DN	Split sliding shelf (1U)
FR-PCSRA-CP	Mouse pad shelf
FR-PCSRA-EM	Slide out shelf for use with universal shelf and with mouse pad (RETMA) (Used with 16-inch keyboard)
FR-PCSRA-EN	Monitor shelf and mounting kit (RETMA)
FR-PCSRA-CM	DIGITAL Server 5100/5200/7100 adapter tray kit
FR-PCSRA-CK	DIGITAL Prioris LX Server adapter tray kit
FR-PCSRA-CL	DIGITAL Prioris XL Server adapter tray kit
FR-PCSRA-CU	RA310 RAID adapter tray mount kit

## Rackmount Console Options

Part Number	Description
FR-PCSRA-CY	4-port desktop console (multiplexes four DIGITAL Servers into one desktop console)
FR-PCSRA-CZ	8-port desktop console (multiplexes eight DIGITAL Servers into one desktop console)
FR-PCSRA-CW	Rackmounting kit for 4-port console
FR-PCSRA-CX	Rackmounting kit for 8-port console

## Rackmount Cable Options

Part Number	Description
FR-PCSRA-DA	10-foot cable kit for connecting server to console
FR-PCSRA-DB	20-foot cable kit for connecting server to console
FR-PCSRA-DD	25-foot ext. cable for keyboard/monitor/mouse
FR-PCSRA-DE	3-foot daisy chain cable kit
FR-PCSRA-DF	50-foot master console remote system
FR-PCSRA-DG	100-foot master console remote system
FR-PCSRA-DH	150-foot master console remote system
FR-PCSRA-DI	Virtual keyboard/mouse

## Rackmount - Other Options

Part Number	Description
FR-PCSRA-DK	Side panel locks (2 pair) (1U, 2U, 4U, and 8U panels)
FR-PCSRA-DQ	15U blanking panel kit
FR-PCSRA-DR	Rackmount baying kit

## DIGITAL Server Mass Storage Devices

<b>Part Number</b>	<b>Description</b>
FR-PCXCR-AR	CD-ROM 12x CD-ROM SCSI Dbl 1800 bps
FR-PCXRJ-AD	Floppy 3.5-inch 1.44 MB frost white
FR-CDCBA-CA	2 GB 7200 RPM UW SCSI SBB
FR-CECBA-CA	4 GB 7200 RPM UW SCSI SBB
FR-CFCBA-CA	9 GB 7200 RPM UW SCSI SBB
FR-CECCA-CA	4 GB 10 K UW SCSI SBB
FR-CDCBA-DA	2 GB 7200 RPM Ultra SCSI SCA2
FR-CECBA-CA	4 GB 7200 RPM Ultra SCSI SCA2
FR-CFCBA-CA	9 GB 7200 RPM Ultra SCSI SCA2

## Input/Output Devices

<b>Part Number</b>	<b>Description</b>
FR-PC7XS-AA	Mouse 2-button
FR-PCTXH-IA	External cable
FR-PCTXH-JA <sup>(1)</sup>	AC power cable 120 V ac, 15 A
FR-PCXLA-GA	Windows 95 keyboard

<sup>(1)</sup> Appropriate power cords should be provided locally.

## Server Manager Platform Reset Cables

Part Number	Description
FR-PCXCK-AF	Server manager/DIGITAL Server cable kit
FR-BN21H-02	Ext. SCSI cable, 2 m SCSI-2, 50-pin HD-to-50 HD
FR-BN21K-02	Ext. SCSI cable, 2 m SCSI-2, 68-pin HD-to-68 HD right angle
FR-BN37A-02	VHDCI to VHDCI cable, 2 m
FR-BN38C-02	68 HD straight to VHDCI cable, 2 m
FR-PCXAR-WF	Int. SCSI cable, 580mm, SCSI-3, 68 pin HD IDC-to-68 pin HD IDC
FR-PCXAR-WG	Int. SCSI cable, 580mm, SCSI-3, 68 pin HD IDC-to-68 pin HD panel mount
FR-PCXAR-WJ	Ext. SCSI 68 pin fault bus supported terminator
FR-BN31S-1E	Ext. SCSI cable, 1.5 m cable 8mm HD PCI RAID-to-68 pin HD (BA356)

## Country Kits (Keyboard and Mouse)

Part Number	Description
FR-PCR2K-AA	English - keyboard and mouse
FR-PCR2K-AB	Belgium - keyboard and mouse
FR-PCR2K-AE	UK - keyboard and mouse
FR-PCR2K-AF	Finnish/Swedish - keyboard and mouse
FR-PCR2K-AG	German/Austria - keyboard and mouse
FR-PCR2K-AI	Italian - keyboard and mouse
FR-PCR2K-AK	Swiss - keyboard and mouse
FR-PCR2K-AN	Norwegian - keyboard and mouse
FR-PCR2K-AP	French - keyboard and mouse
FR-PCR2K-AS	Spanish - Keyboard and Mouse
FR-PCR2K-AJ	Japanese - DS 7000 keyboard, mouse and documents
FR-PCR2K-BY	Japanese - DS 3000 keyboard, mouse and documents

## Line Cord Kits

<b>Part Number</b>	<b>Description</b>
FR-PCSRA-DS	US/Canada line cord kit (eight cords)
FR-PCSRA-DT	Norway line cord
FR-PCSRA-DU	UK/Ireland line cord
FR-PCSRA-DV	Central Europe line cord
FR-PCSRA-DW	Israel line cord
FR-PCSRA-DX	Switzerland line cord
FR-PCSRA-DY	Australia line cord
FR-PCSRA-CA	US/CAN power outlet strip
FR-PCSRA-CB	UK power outlet strip
FR-PCSRA-CC	German power outlet strip
FR-PCSRA-CD	French/Belgium power outlet strip
FR-PCSRA-CE	Swiss power outlet strip
FR-PCSRA-DL	Multiple IEC power outlet strip

## UPS

<b>Part Number</b>	<b>Description</b>
4N-APACH-AF	2200 V ac, 3U uninterruptible power supply
4N-APACH-AG	30000 V ac, 3U uninterruptible power supply

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