

# Origin200™ and Origin™ Vault Rackmount Kit Installation Guide

Document Number 007-3575-001

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St. Peter's Basilica image courtesy of ENEL SpA and InfoByte SpA. Disk Thrower image courtesy of Xavier Berenguer, Animatica.

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## About the Rackmounting Kit

This kit converts a Silicon Graphics® Origin200™ server or Origin™ Vault expansion cabinet from a tower configuration to a rackmount configuration. It also provides a mounting shelf that you can use to install the Origin200 or Origin Vault in a standard, 19-inch equipment rack.

### Mounting and Safety Considerations

The Silicon Graphics Origin200 server and Origin Vault products have been certified and licensed by international safety agencies for use in the following ways:

- as stand-alone units
- for installation in Silicon Graphics model CMN-A017 rack systems (Silicon Graphics marketing code P-S-RACK)

Although the hardware in this kit enables you to mount these systems in 19-inch equipment racks, installation in such racks may require submittal to an approved safety agency for evaluation, certification, and licensing of the new rack-system combination. Check with your local building inspector for requirements applicable to your location.

### Vertical Space Requirements

When used with the mounting shelf provided, each chassis uses 4 U of vertical rack space (7 inches, or 17.8 cm). (One “U” is equal to 1.75 inches or 4.445 cm.)

## Mounting and Vibration

The mounting shelf provided with this kit does not provide dampening and insulation from excess mechanical vibration and shock. If you are installing the Origin Vault server or Origin Vault expansion cabinet in a location that is subject to shock and vibration in excess of the values to which these units are rated, you should obtain an appropriate mounting system. Table i shows the vibration ratings for Origin200 and Origin Vault.

**Table i**            Vibration Ratings for Origin200 and Origin Vault

Characteristic	Value
Maximum sustained vibration, operating	5-10 Hz @ .01" total excursion, 10-500 Hz @ 0.1 g
Maximum peak, operating	5-10 Hz @ .02" total excursion, 10-500 Hz @ 0.1 g
Sensitive frequency, operating	8-33 Hz (varies with configuration)

## About This Guide

This *Origin200 and Origin Vault Rackmount Kit Installation Guide* contains one chapter:

- Chapter 1, "Installing the Rackmount Kit" lists the kit contents and describes how to install the rackmount hardware.

## Typographical Conventions

This document uses these conventions:

- References to document titles are in *italics*.
- IRIX commands and filenames appear in text as *italics*.
- Anything that you type on your keyboard is in **Courier bold**.
- References to other chapters and sections within this guide are in quotation marks.
- Names of menu choices are in quotation marks.

- Names of IRIX reference (manual) pages are in the default font and are followed by the section number of the reference page. For example “who(1)” refers to the *who* command, which is found in section 1 of the IRIX reference.
- Steps to perform tasks are in numbered sentences. When a numbered step needs more explanation, the explanation follows the step and is preceded by a square bullet.



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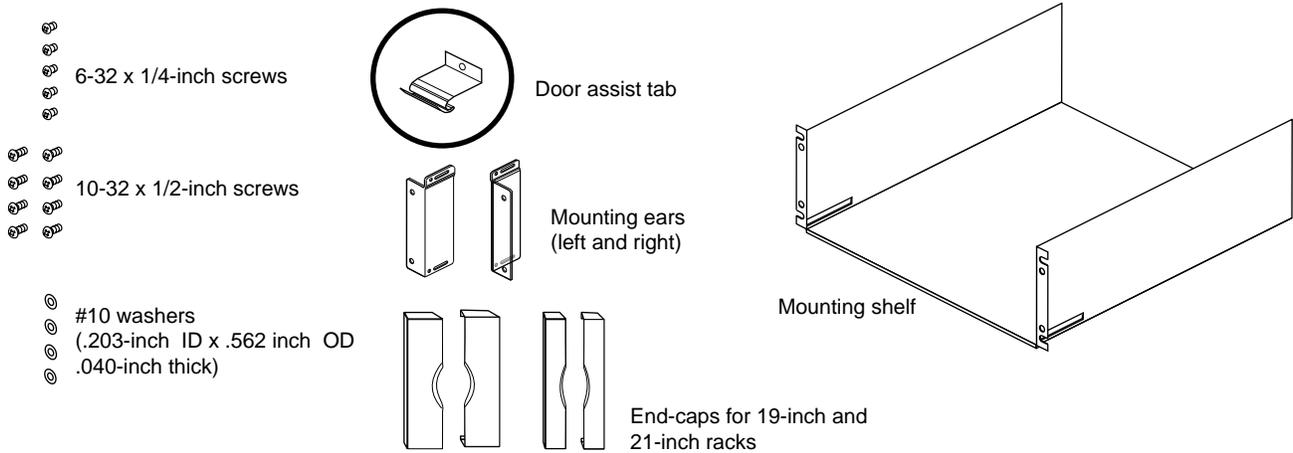
## Installing the Rackmount Kit

This chapter describes how to convert an Origin200 server or Origin Vault expansion cabinet from a tower configuration to a rackmount configuration. It contains the following sections:

- “Checking the Kit Contents” on page 2 lists the contents of this rackmount kit.
- “Preparing the System” on page 3 describes how to prepare the system for installing the kit.
- “Removing Components” on page 5 describes what components you must remove from the system.
- “Attaching the Rackmount Hardware” on page 10 shows how to attach the rackmounting ears to the sides of the chassis.
- “Installing the System In a Rack” on page 12 describes how to install the rackmounting rails and the system in an equipment rack.

## Checking the Kit Contents

The rackmount kit ships with the items shown in Figure 1-1 and Table 1-1. If any of these items are missing, contact Silicon Graphics or your local service provider.



**Figure 1-1** Contents of the Rackmount Kit

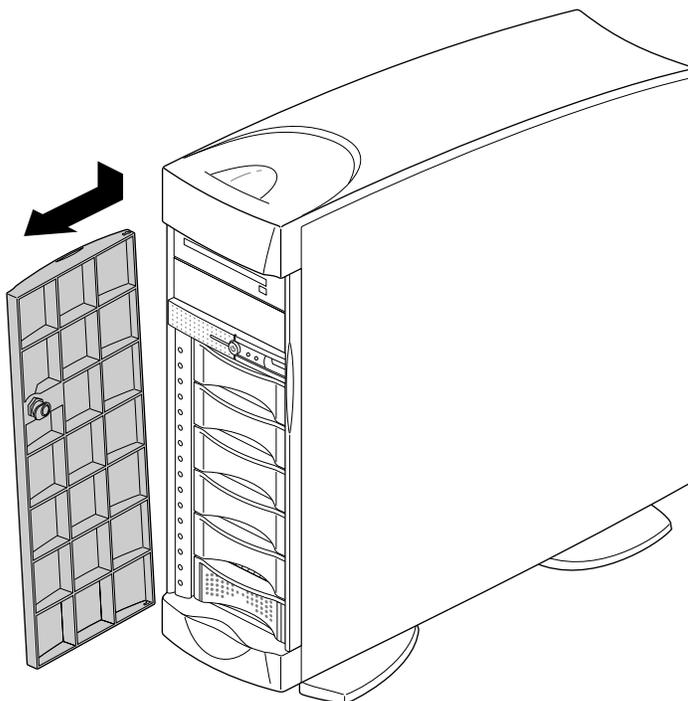
**Table 1-1** Contents of the Rackmount Upgrade Kit

Item	Quantity	Silicon Graphics Part Number
Mounting shelf	1	040-2083-001
Mounting ears	1	040-2006-001 (right)
	1	040-2007-001 (left)
Door assist tab	1	040-2005-001
End-caps kit, containing 2 caps for 19-inch racks and 2 caps for 21-inch racks.	1	026-1198-001
Screws, Phillips head, 6-32 x 1/4-inch	5	7270805
Screws, Phillips head, 10-32 x 1/2-inch	8	7260230
Washers, #10 (.203 ID x .562 OD x .040 inch thick)	4	7280044

## Preparing the System

Follow these steps to prepare your Origin200 or Origin Vault before installing the rackmount kit:

1. Shut down the system.
  - If you are installing the kit on an Origin Vault expansion cabinet, you must first shut down the computer to which it is attached.
2. Disconnect all cables at the rear of the system, including power, networking, serial, CrayLink™ interconnect, grounding, and so forth.
3. Remove the front door. See Figure 1-2.
  - To remove the door, open it until it is perpendicular to the front of the system.
  - Press down on the top edge of the door, exerting slightly more pressure on the outside edge of the door, farthest from the hinge. It should pop off its hinge.



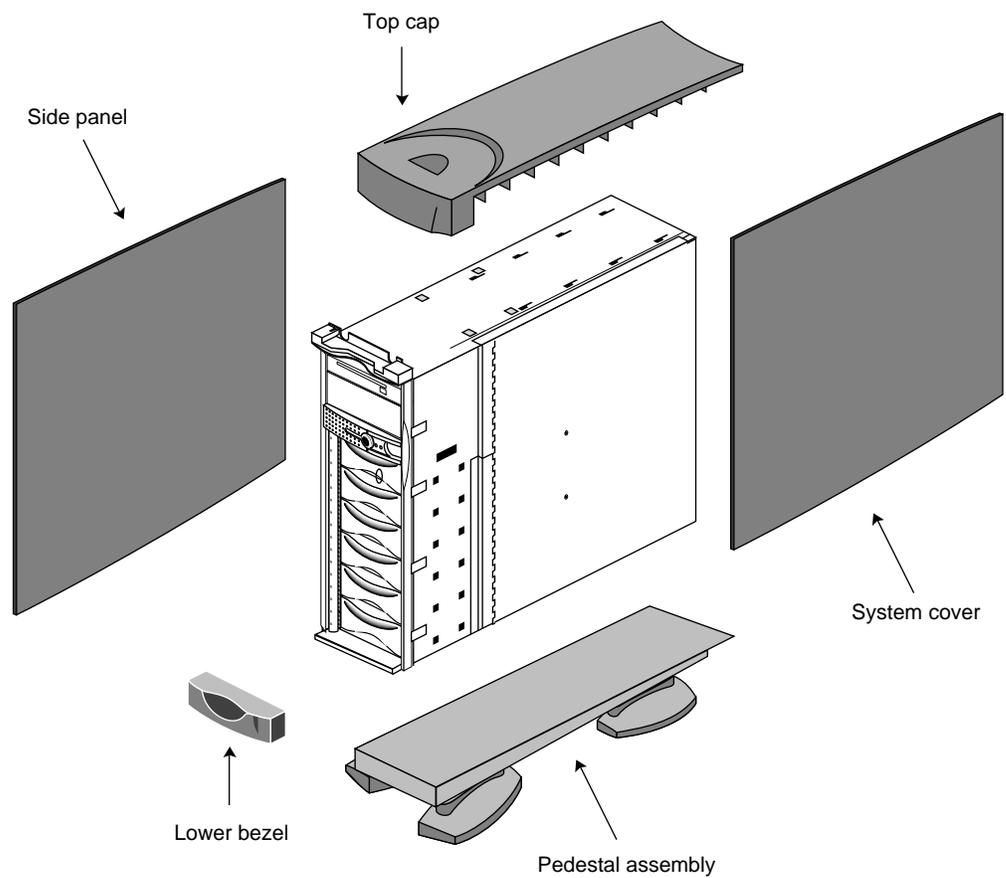
**Figure 1-2** Removing the Front Door

4. Remove all internal 3.5-inch drives.
  - Be sure to label or otherwise mark the drives so that you can put them back into the correct drive bays. The drives **must** be replaced in the same drive bays from which you removed them.
5. If there are any drives in the 5.25-inch peripheral carrier, remove the carrier.

You are now ready to remove external components.

## Removing Components

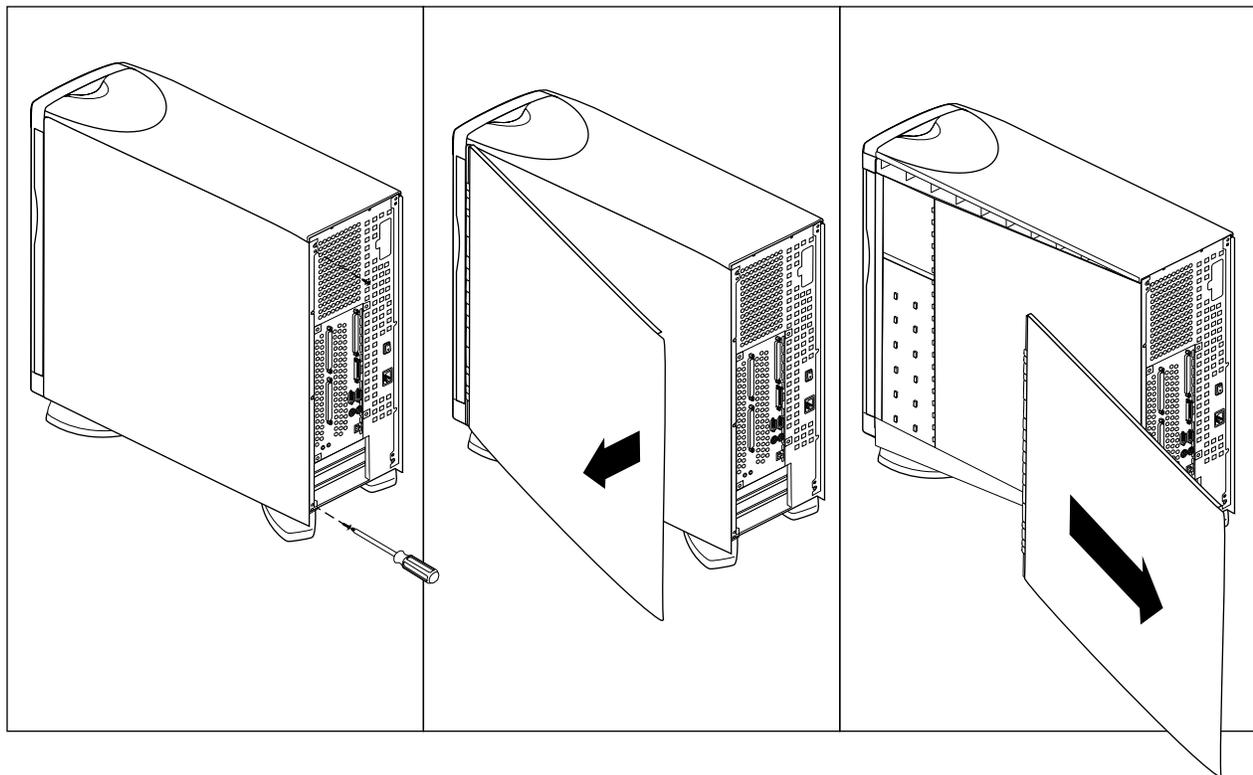
Before installing the rackmount kit, remove the external components shown in Figure 1-3.



**Figure 1-3** Components That Must Be Removed Before Installing the Rackmount Kit

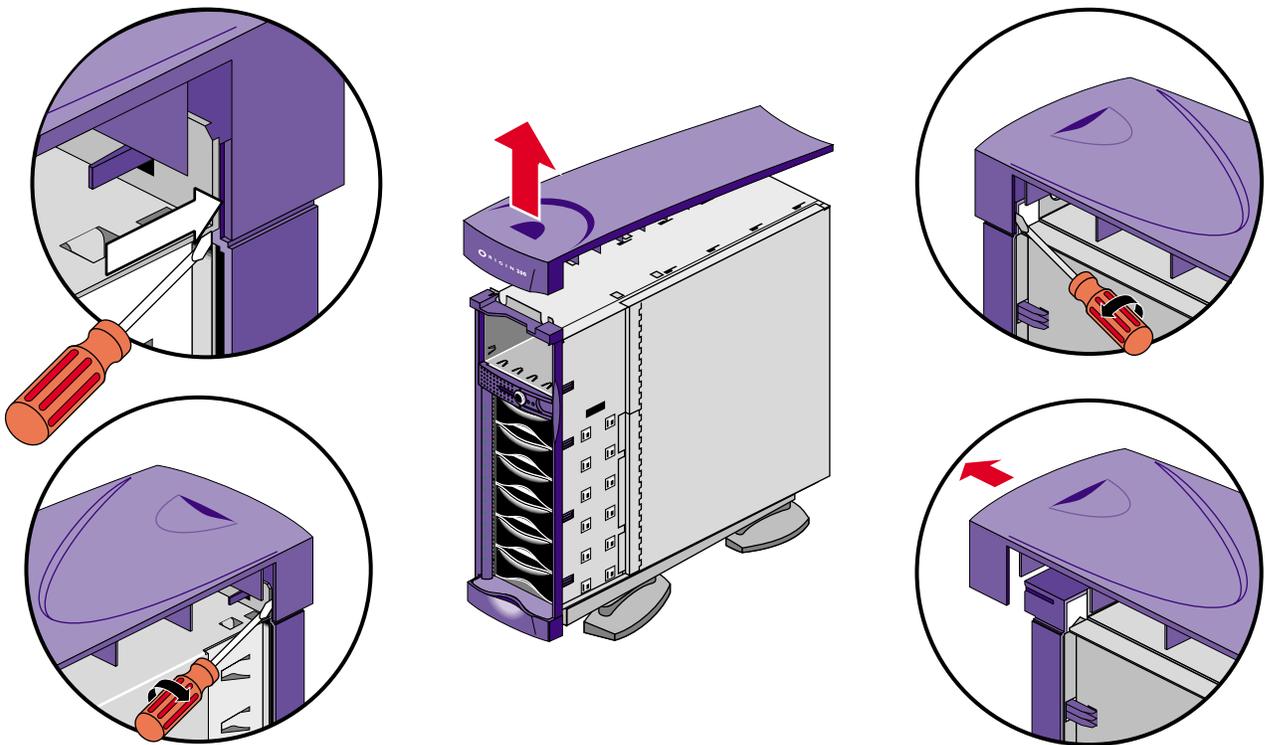
Follow these steps to remove the components:

1. Remove the system cover, as shown in Figure 1-4.
  - Using a #2 Phillips screwdriver, remove the two screws that secure the side panel to the chassis.
  - Pull the rear edge of the side panel away from the rear of the system.
  - Slide the system cover back and off the system.



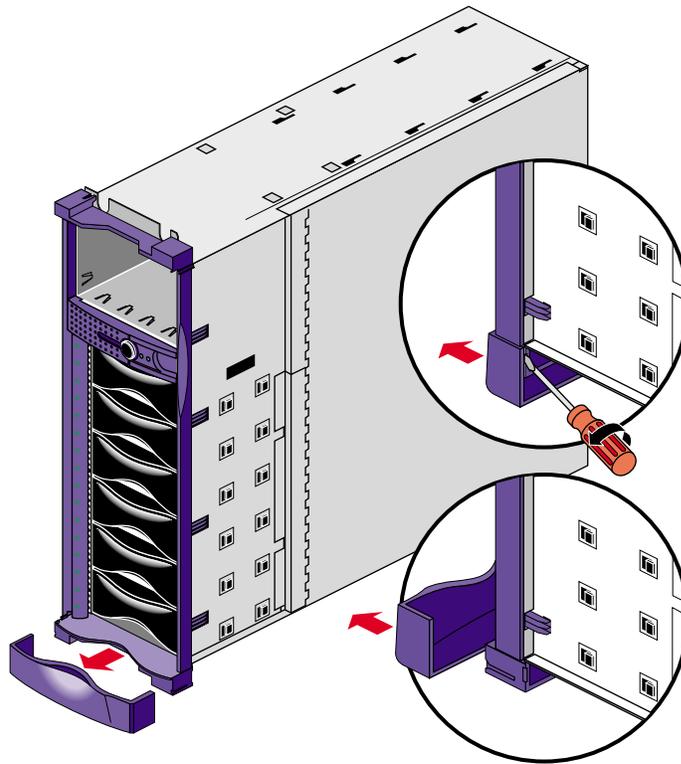
**Figure 1-4** Removing the System Cover

2. Remove the side panel.
  - The side panel (shown in Figure 1-3) is identical to the system cover, except that it is on the opposite side of the system. Remove it in the same way.
3. Remove the top cap, as shown in Figure 1-5.
  - Insert a flat-blade screwdriver between the top cap and sheet metal, as shown in Figure 1-5.
  - Twist the screwdriver while pulling the top cap forward. The top cap should move forward slightly as one side disengages from the sheet metal.
  - Repeat this step on the opposite side of the top cap, as shown in Figure 1-5.
  - When the second side of the top cap disengages from the sheet metal, pull the top cap forward, then lift it up and off of the chassis.



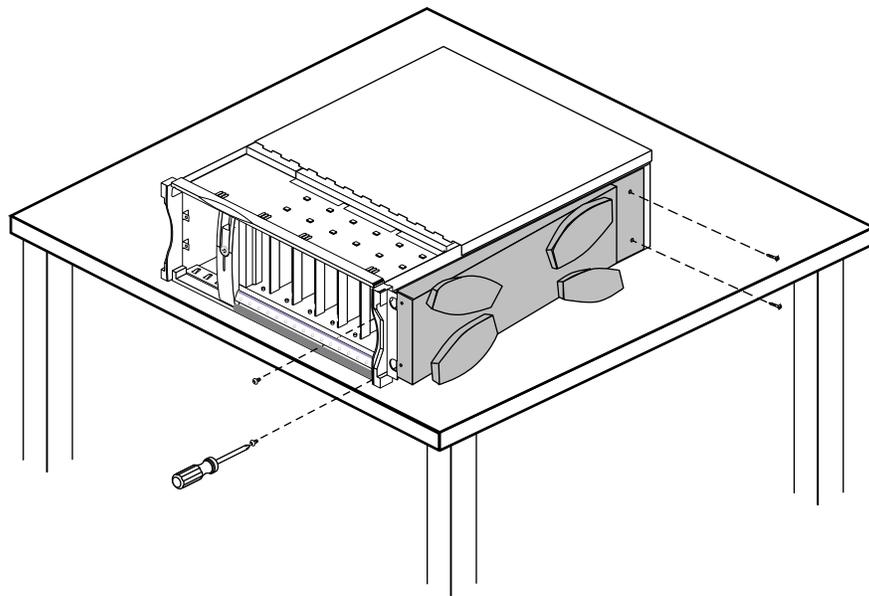
**Figure 1-5** Removing the Top Cap

4. Remove the lower bezel.
  - Insert a flat-blade screwdriver between one side of the lower bezel and the sheet metal, as shown in Figure 1-6.
  - Twist the screwdriver to disengage the lower bezel from the sheet metal.
  - Pull off the lower bezel.



**Figure 1-6** Removing the Lower Bezel

5. Remove the pedestal assembly, as shown in Figure 1-7.
  - Place the system on its side on a sturdy work surface capable of supporting at least 40 pounds (18 kg) and up to 75 pounds (34 kg). Be careful not to scratch or damage the front bezel.
  - Using a #2 Phillips screwdriver, remove the four screws that hold the pedestal assembly to the chassis and remove the pedestal assembly.



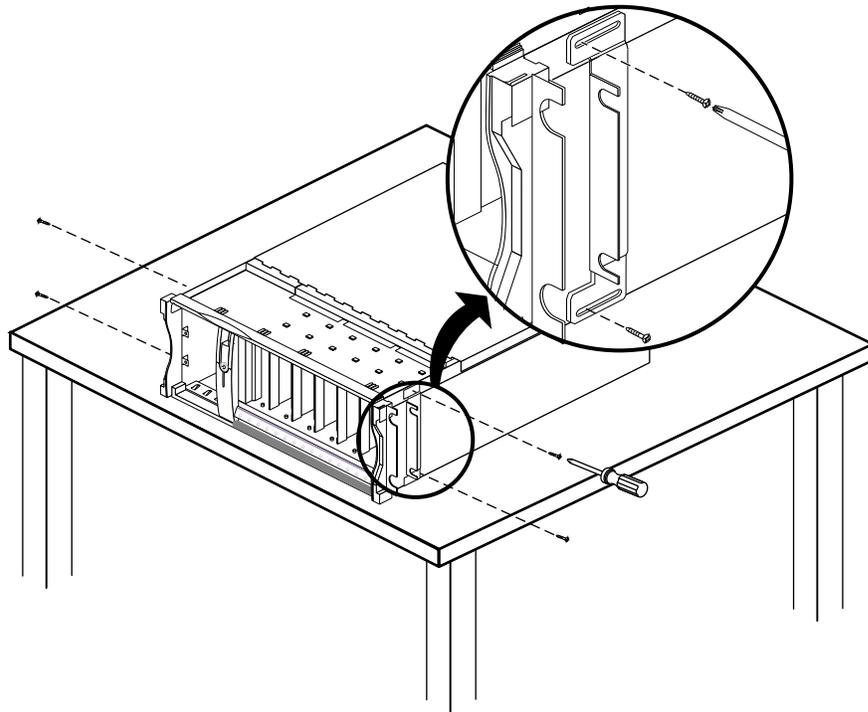
**Figure 1-7** Removing the Pedestal Assembly

You are finished removing components. You are now ready to install the rackmount kit.

## Attaching the Rackmount Hardware

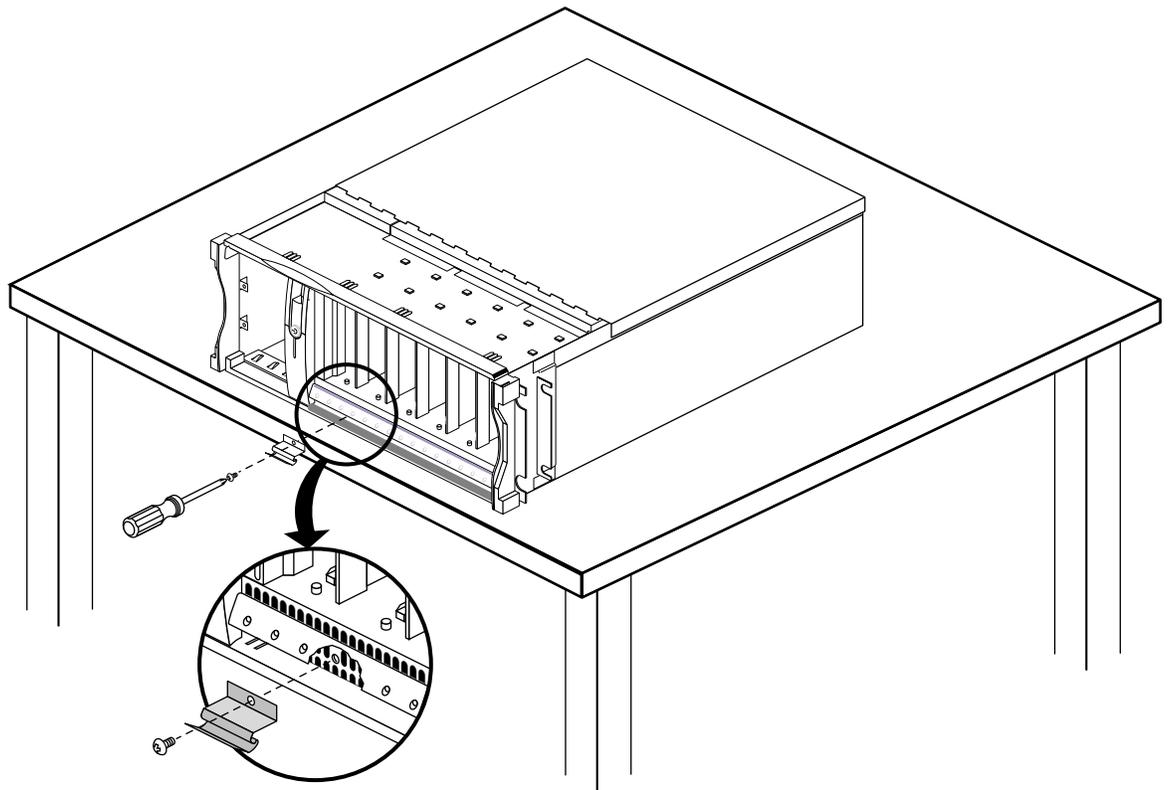
Follow these steps to attach the hardware required to rackmount the chassis:

1. Attach the mounting ears, as shown in Figure 1-8.
  - Using a #2 Phillips screwdriver and four of the 6-32 x 1/4-inch screws provided with this kit, attach the two rackmounting ears to the sides of the chassis. The ears conform to the shape of the sides of the chassis, and can be installed only one way.
  - Notice the slots in the sides of the mounting ears that allow you to move the ears forward or backward to adjust how far the chassis extends from the equipment rack.



**Figure 1-8** Attaching the Mounting Ears

2. Install the door assist tab using one of the 6-32 x 1/4-inch screws.
  - The spring-tab provides extra support for the door in a rackmount configuration. If you ever return the system to a tower configuration, be sure to remove this tab as it will interfere with the operation of the door in an upright (tower) system.
  - Insert the tab between the space in the front bezel and align the tab over the mounting hole, as shown in Figure 1-9.
  - Using a #2 Phillips screwdriver, secure the door assist tab with a 6-32 x 1/4-inch screw.



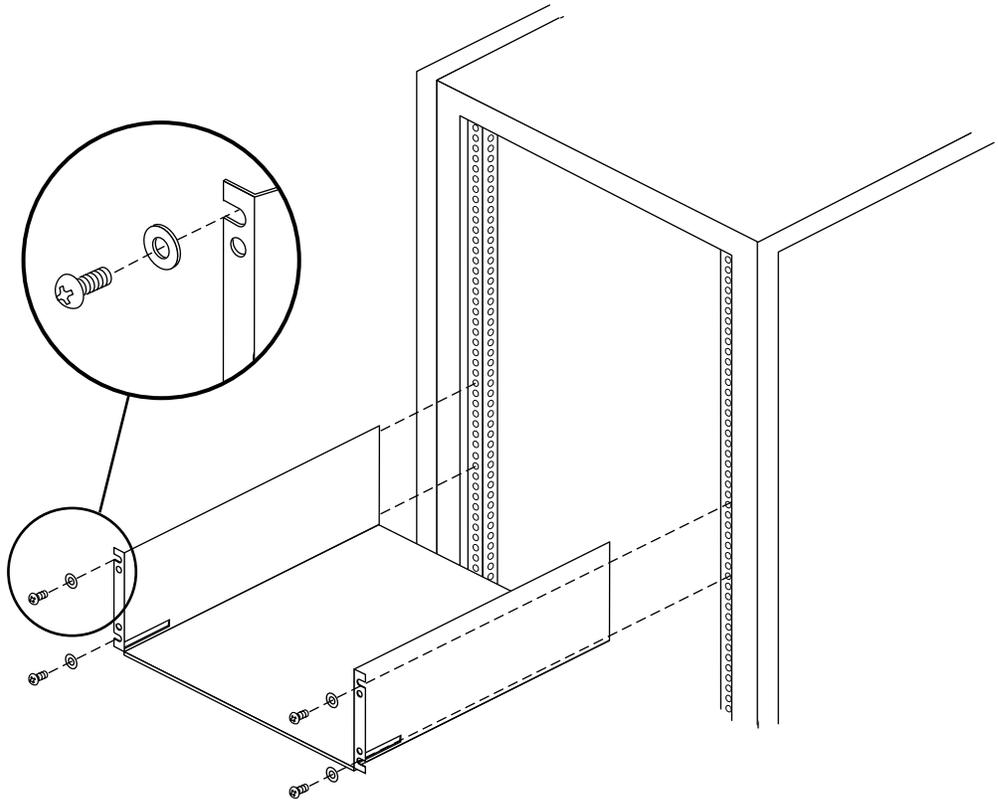
**Figure 1-9** Installing the Door Assist Tab

You are now ready to install the system in an equipment rack.

## Installing the System in a Rack

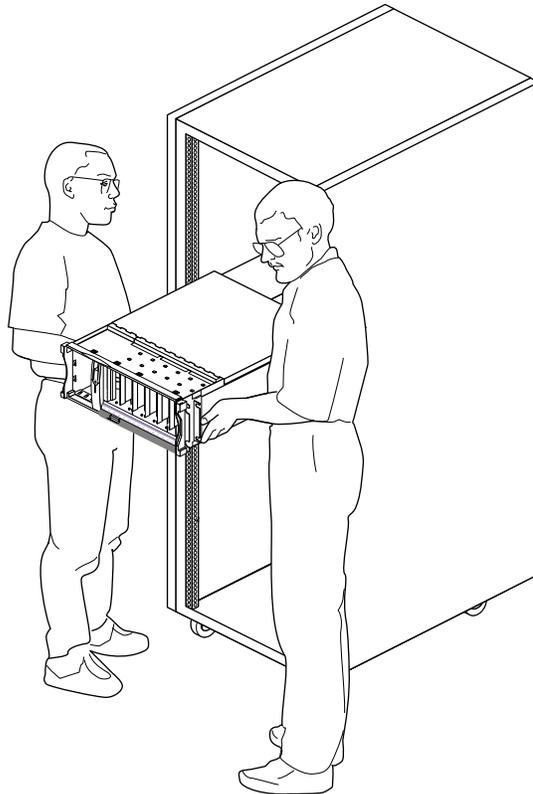
Follow these steps to install the Origin200 server or Origin Vault expansion cabinet in an equipment rack.

1. Install the mounting shelf in the equipment rack using four 10-32 x 1/2-inch screws and the four washers, as shown in Figure 1-10.
  - The mounting shelf uses 4 U (7 inches, or 17.8 cm) of vertical space.
  - Note that the shelf may not be suitable for use in environments with excessive vibration. See “Mounting and Safety Considerations” on page xi for more details. If you use a different mounting system, make sure it can support at least 75 pounds (34 kg).



**Figure 1-10** Installing the Mounting Shelf

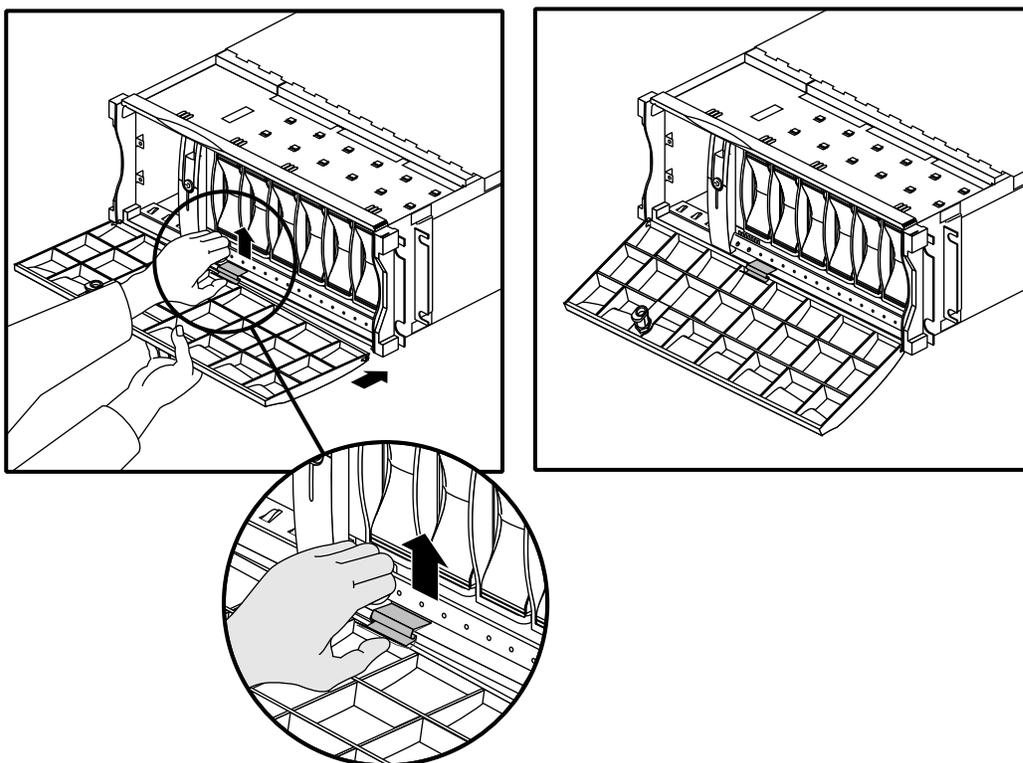
- Using two people, one standing on each side of the chassis, lift the system and move it to the side of the equipment rack, as shown in Figure 1-11.



**Figure 1-11** Placing the System in a Rack

- Slide the chassis back into the rack until the mounting ears are flush against the front mounting rails of the rack.
  - If necessary, you can loosen the mounting ears and slide them forward or backward to adjust how far the chassis extends from the front of the rack.
- Fasten the chassis to the front mounting rails with the remaining four 6-32 x 1/4-inch screws.

5. Install one pair of new end caps.
  - There are two sets of end caps provided. (See Figure 1-1.)
  - Use the narrower set with 19-inch equipment racks.
  - Use the larger set with 21-inch equipment racks.
6. Replace the 5.25-inch peripheral carrier.
7. Replace any 3.5-inch drives you removed.
8. Replace the front door, as shown in Figure 1-12.



**Figure 1-12** Replacing the Front Door

**Note:** If you need to remove the front door in the future (for example, to remove the 5.25-inch peripheral carrier), you must lift up the door assist tab while opening the door.

You are finished installing the rackmount kit and placing the system in an equipment rack. You may now reattach the various cables and reinstall any 5.25-inch and 3.5-inch drives you removed.



**Warning:** Before connecting two Origin200 modules, always attach the grounding cable between the two modules. If you do not use this grounding cable, differences in ground potential between the two modules may damage internal components. This grounding cable is provided with all two-module Origin200 servers. See your owner's guide for an explanation of the grounding cable and how to install it.

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