# User's Guide

# PowerDomain 2940UW / 3940UW

**Fast and Wide UltraSCSI Accelerator**

PowerDomain 2940UW/3940UW User's Guide
Stock Number: 510864-00, Rev. B Page: Front Cover
Print Spec Number: 493742-00
Current Date: 2/20/96 ECN Date: 2/27/96

Adaptec, Inc.
691 South Milpitas Boulevard
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## User's Guide

adaptec®

PowerDomain 2940UW/3940UW User's Guide
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### FCC Compliance Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Move the equipment away from the receiver
- Plug the equipment into an outlet on a circuit different from that to which the receiver is powered
- If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions

CAUTION: Only equipment certified to comply with Class B (computer input/output devices, terminals, printers, etc.) should be attached to this equipment, and must have shielded interface cables.

Finally, any changes or modifications to the equipment by the user not expressly approved by the grantee or manufacturer could void the user's authority to operate such equipment.

Each PowerDomain 2940UW/3940UW is equipped with an FCC compliance label which shows only the FCC identification number. The full text of the associated label follows:

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

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# ▼▼▼▼ 1

# Getting Started

Welcome to Adaptec®, and congratulations on your purchase of the PowerDomain™ 2940UW / 3940UW. Your new SCSI (Small Computer System Interface) accelerator card features

- Fast, reliable data transfer among the SCSI devices connected to it
- A configuration control utility that enables you to easily change SCSI-related settings directly from your desktop

## System Requirements

You must have the following hardware and software to use the PowerDomain 2940UW / 3940UW.

### Hardware

- MacOS PCI-based (peripheral component interconnect) computer
- 8 MB RAM (random-access memory)
- At least one free PCI expansion slot

### Software

MacOS version 7.5.2 or later



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## Tools and Equipment Required

To install the PowerDomain 2940UW / 3940UW, you should have the following items on hand:

- At least one PowerDomain 2940UW / 3940UW accelerator card
- The *PowerDomain Control Utility* diskette included with your accelerator card
- A medium-sized standard screwdriver
- A wrist grounding strap (optional)

## Notes, Cautions, and Warnings

Always use care when handling any electrical equipment. To avoid injury to people or damage to equipment and data, be sure to follow the cautions and warnings in this document.

**Note:** Notes are reminders, tips, or suggestions that might simplify the procedures included in this document.

**Caution:** Cautions alert you to actions that might cause damage to your system or your data.

**WARNING:** Warnings alert you to actions that might cause injury to you or someone else.



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Adaptec does not claim to have included in this document every condition or situation that might require a caution or warning notice. Be sure to consult the documentation for your computer and any connected equipment when you are installing the equipment or changing its configuration.

**WARNING:** *Always* use caution when handling electrical equipment!

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# 2

# Installing the PowerDomain 2940UW/ 3940UW and Connecting SCSI Devices

This chapter tells you how to do the following:

- Install PowerDomain 2940UW / 3940UW accelerator cards in your MacOS PCI-based system (both tower and desktop models)
- Connect internal and external SCSI devices to each PowerDomain 2940UW / 3940UW installed
- Set SCSI chain termination
- Assign SCSI IDs



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# Installing the PowerDomain 2940UW/ 3940UW—Tower Models

**Note:** If your tower model differs from the one illustrated in this manual, refer to your computer user documentation for instructions on installing an expansion card. (Instructions for desktop models begin on page 2-11.)

To install the PowerDomain 2940UW / 3940UW in your tower-model computer

1. Turn OFF the power to the computer and any attached devices, and disconnect all power cords.

**WARNING:** To avoid possible exposure to electric shock, be sure all power to your system is turned OFF.

2. Press the computer's power button. This will dissipate the charge in the power supply capacitors.



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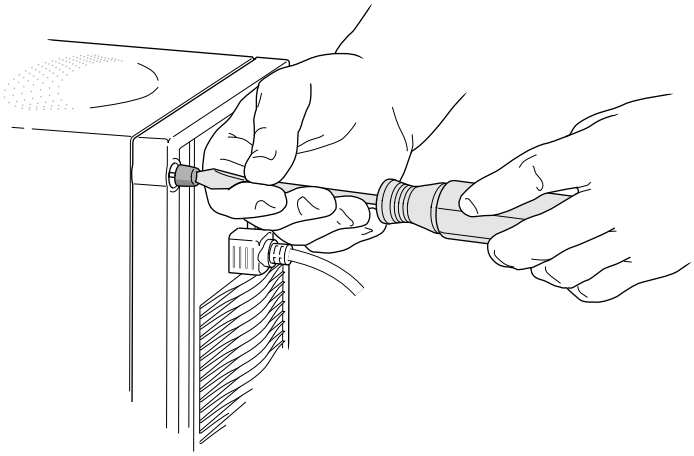
**3** Loosen the six large screws on the corners and sides of the computer's back panel. Do not completely remove the screws or the back panel.





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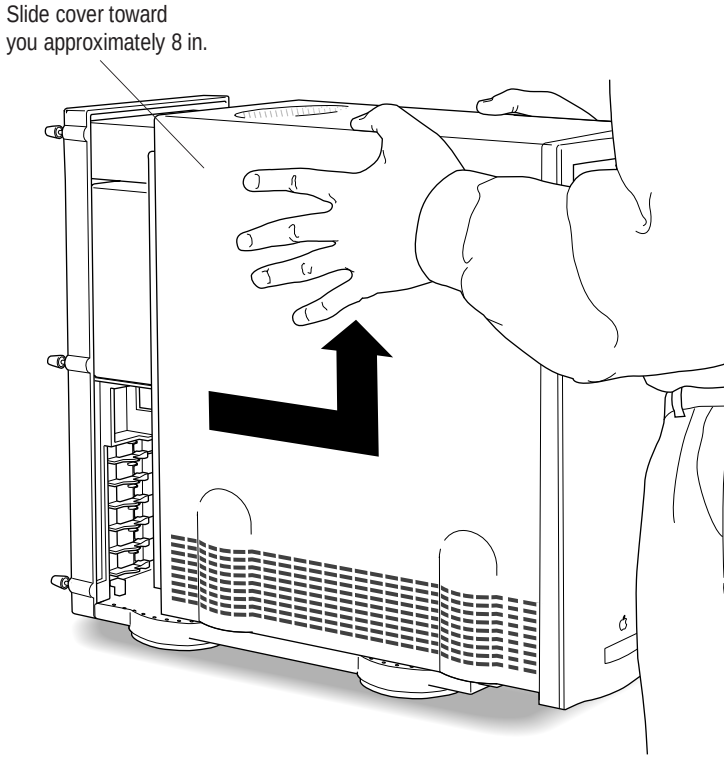
**4** Remove the front cover.

**a** With the front of the computer facing you, place one hand on either side of the cover.

**b** Slide the cover toward you about 8 in.

**c** Lift the cover straight up and off the computer.

Refer to your computer user documentation if you need more information about removing the cover.



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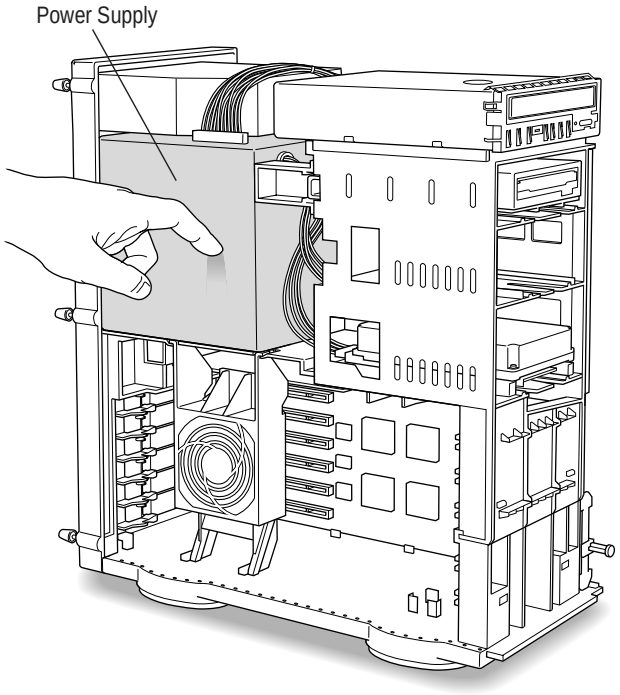
**5** Touch the metal part of the power supply to discharge any static electricity from your clothes and body. (Use a wrist grounding strap if you have one.)

**Caution:** Be sure to do this step before you touch any parts inside the computer, install the PowerDomain 2940UW / 3940UW, or install any internal devices.



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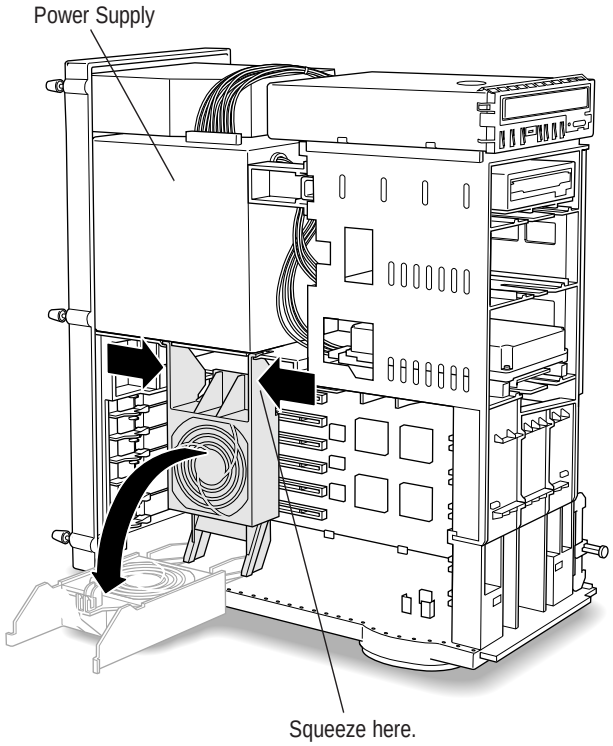
**6** Lower the auxiliary fan.

**a** Release the auxiliary fan by squeezing the sides of the fan housing just below the power supply.

**b** Continue to squeeze while pulling down on the fan.



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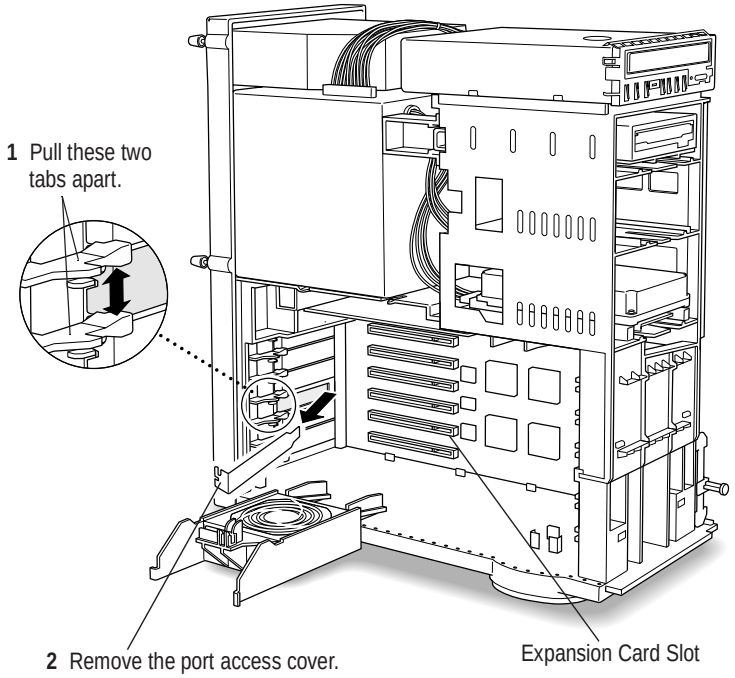
**7** Choose an empty PCI expansion card slot, and remove its port access cover.

**a** To release the port access cover, spread the two tabs apart slightly that secure the cover to the computer case.

**WARNING:** Be careful not to touch the sharp edges of the port access cover.



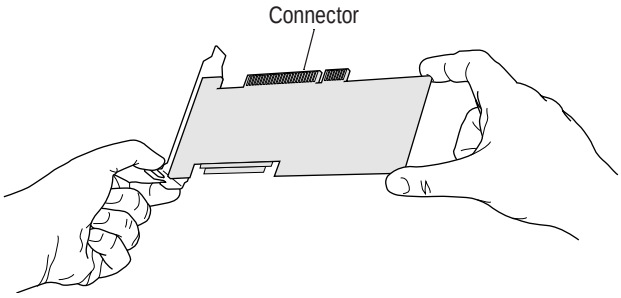
**b** Pull the front portion of the port access cover away from the computer case about 15 degrees.

**c** Pull the port access cover toward you to remove it from the computer.

**d** Store the port access cover in a safe place in case you need to use it again.

**8** Remove the PowerDomain 2940UW / 3940UW from its conductive tray. Hold the card by its edges to avoid touching the components.

Place the card on top of the tray if you need to put the card down.



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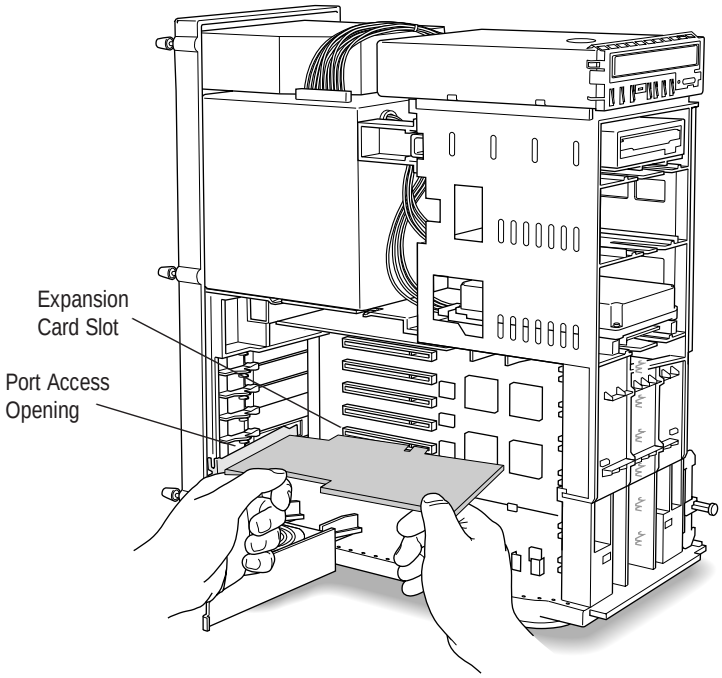
**9** Position the PowerDomain 2940UW / 3940UW accelerator card component-side down. Align the left side of the card with the port access opening, and align the connector with the expansion card slot.



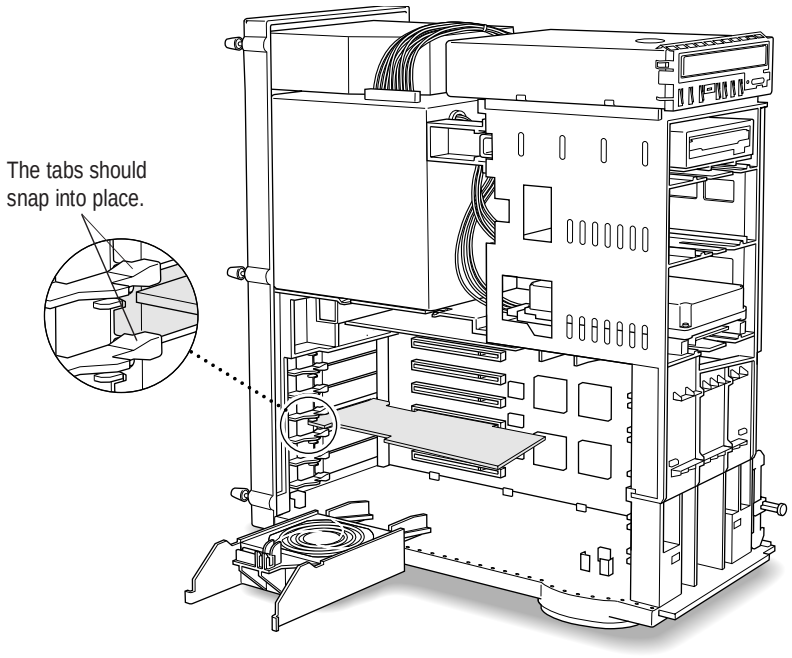

**10** Insert the connector end of the PowerDomain 2940UW / 3940UW firmly into the expansion card slot.

**a** Hold the PowerDomain 2940UW / 3940UW at a 15-degree angle while you insert the back left corner of the card into the port access opening and the right corner of the connector into the expansion card slot.

**b** Position the card between the two tabs that secured the port access cover you removed in step 7. (You might need to pull the tabs apart slightly so the card fits between them.) At the same time, push the PowerDomain 2940UW / 3940UW into the expansion card slot as far as it will go.

**Caution:** *Do not* force the card. If you're having trouble installing it, carefully remove the card and try installing it again.

**c** Pull on the accelerator card slightly. If it stays in place, the card is securely seated. If it doesn't, try installing the card again.




**11** Now turn to *Connecting SCSI Cables and Devices* on page 2-19.



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# Installing the PowerDomain 2940UW/ 3940UW—Desktop Models

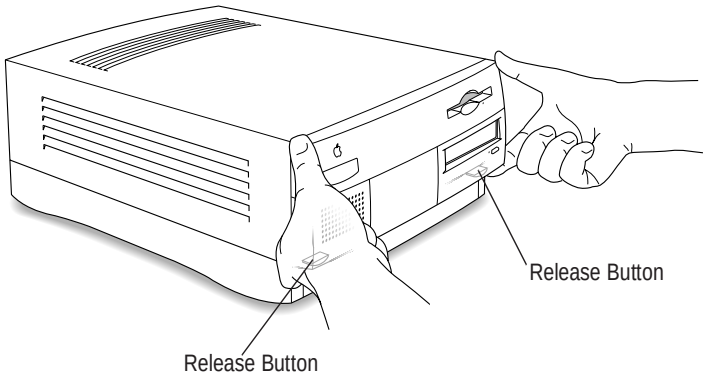
**Note:** If your desktop model differs from the model illustrated in this manual, refer to your computer user documentation for instructions on installing an expansion card. (Instructions for tower models begin on page 2-2.)

To install the PowerDomain 2940UW / 3940UW in your desktop-model computer

1. Turn OFF the power to the computer and any attached devices, and disconnect all power cords.

**WARNING:** To avoid possible exposure to electric shock, be sure all power to your system is turned OFF.

2. Press the computer's power button. This will dissipate the charge in the power supply capacitors.
3. Locate the two release buttons under the front panel ledge with your fingertips.



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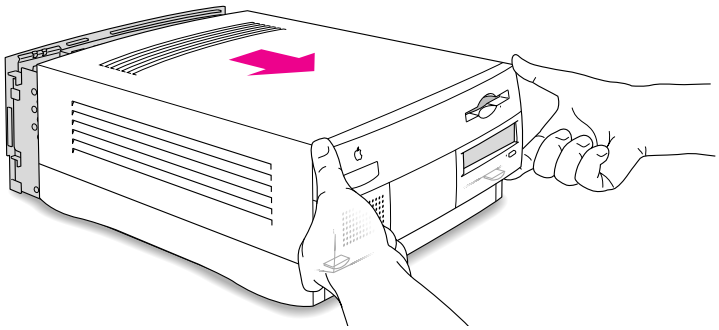
**4** To release the cover from the computer chassis

**a** Position the computer so its front is facing you.

**b** Press and hold the release buttons.

**c** Pull the cover toward you approximately 2 in.





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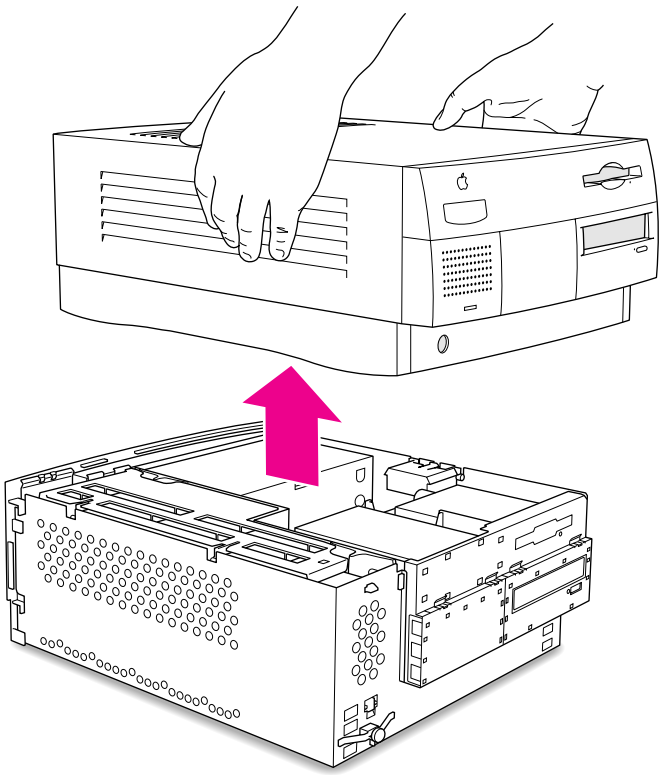
**5** Lift the cover straight up and off the computer.

Refer to your computer user documentation if you need more information about removing the cover.



**6** Touch the metal part of the power supply to discharge any static electricity from your clothes and body. (Use a wrist grounding strap if you have one.)

**Caution:** Be sure to do this step before you touch any parts inside the computer, install the PowerDomain 2940UW / 3940UW, or install any internal devices.



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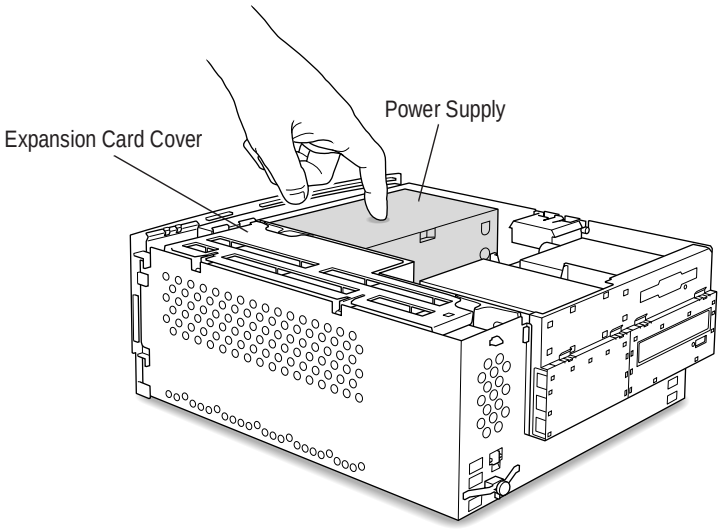
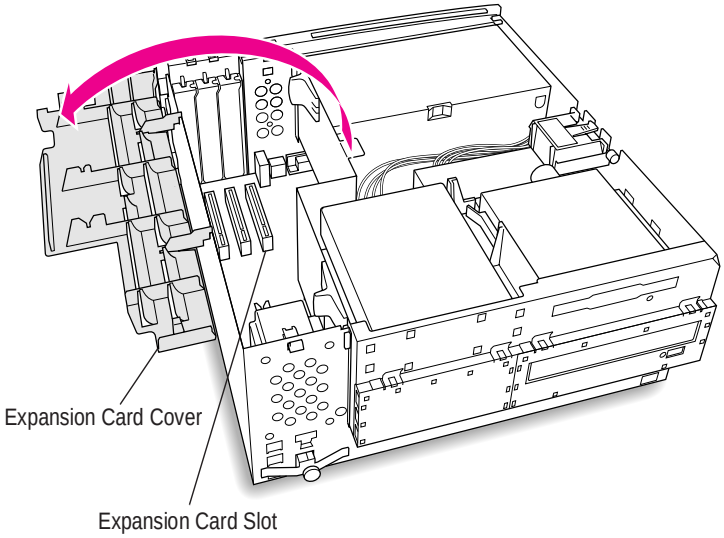



**7** Open the expansion card cover.



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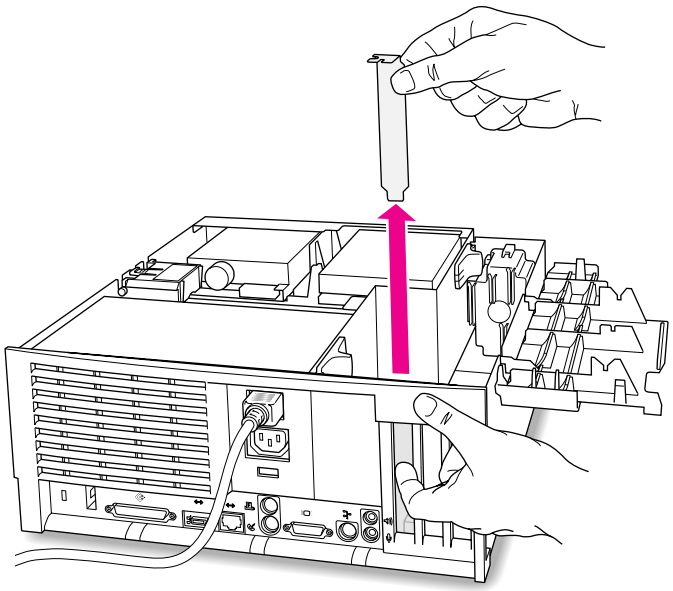
**8** Choose an empty PCI expansion card slot, and remove its port access cover. (The three port access covers are located at the back of the computer.)

**a** Grasp the port access cover with your right hand.

**WARNING:** Be careful not to touch the sharp edges of the port access cover.



(Back of Computer)



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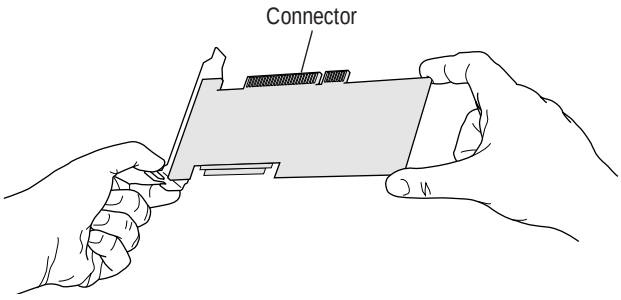
**b** Gently push the port access cover toward the inside of the computer with a finger of your left hand. At the same time, lift the port access cover straight up and out of the computer with your right hand.

**c** Store the port access cover in a safe place in case you need to use it again.

**9** Remove the PowerDomain 2940UW / 3940UW from its conductive tray. Hold the card by its edges to avoid touching the components.

Place the card on top of the tray if you need to put the card down.



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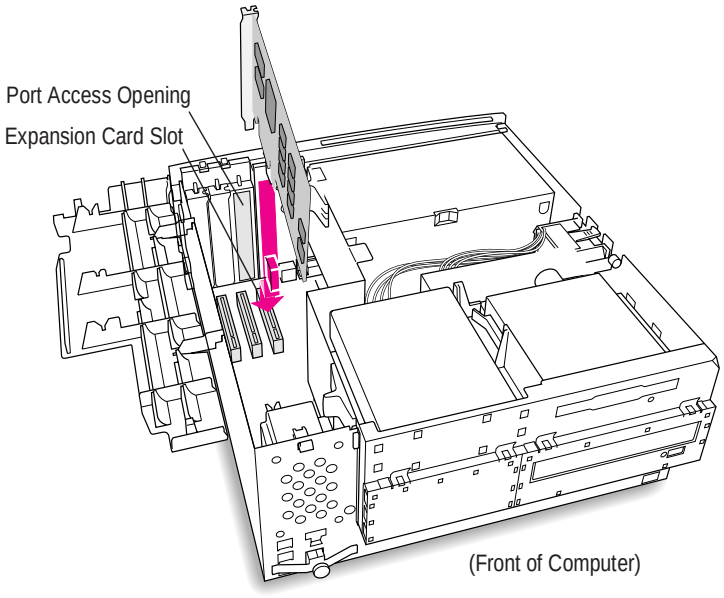
**10** Position the PowerDomain 2940UW / 3940UW accelerator card so its components face the expansion card cover. Align the left side of the card with the port access opening, and align the connector with the expansion card slot.




**11** Insert the connector end of the PowerDomain 2940UW / 3940UW firmly into the expansion card slot.

**a** Hold the PowerDomain 2940UW / 3940UW at a 15-degree angle while you insert the right corner of the connector into the empty expansion card slot and the back left corner of the card into the access port opening.



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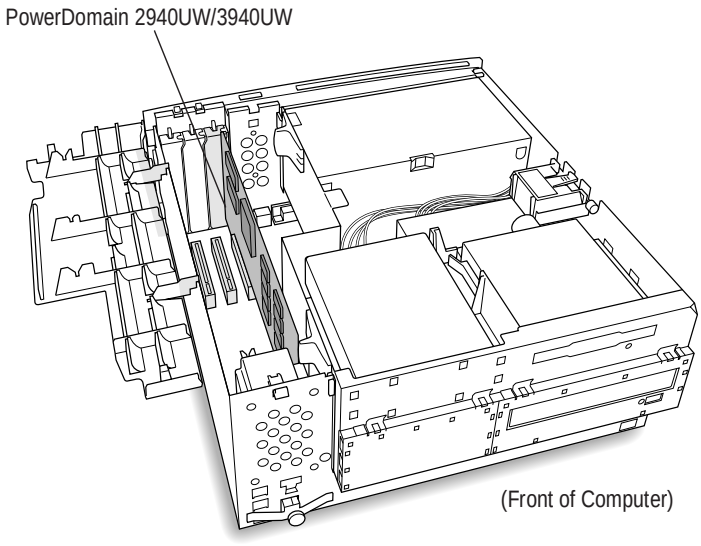
**b** Push the PowerDomain 2940UW/3940UW into the expansion card slot as far as it will go.

**Caution:** *Do not* force the card. If you're having trouble installing it, carefully remove the card and try installing it again.

**c** Pull on the accelerator card slightly. If it stays in place, the card is securely seated. If it doesn't, try installing the card again.




**12** Continue with the next section, *Connecting SCSI Cables and Devices*.



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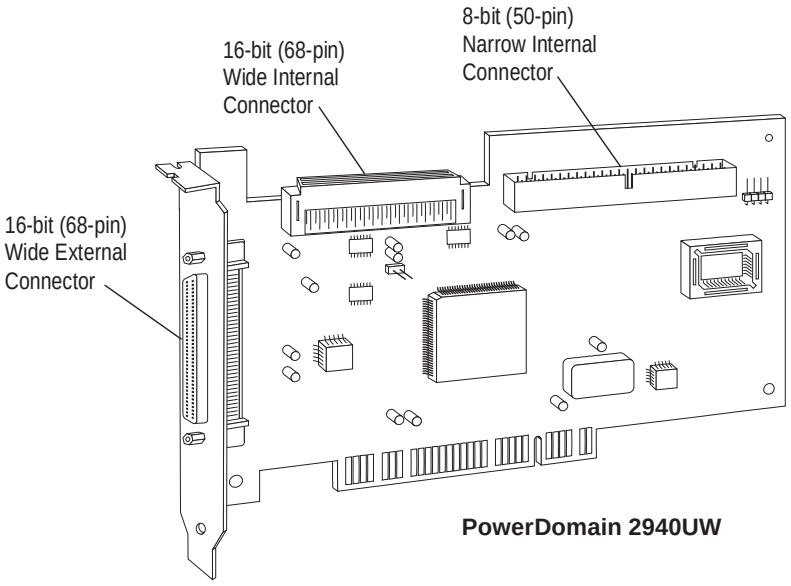
## Connecting SCSI Cables and Devices

SCSI devices are connected by cables in one continuous line called the *SCSI chain*. A SCSI chain consists of an accelerator card and the SCSI cables and devices connected to it. The SCSI chain can include both internal and external devices.

The PowerDomain 2940UW has one internal and one external 16-bit (68-pin) Wide connector and one internal 8-bit (50-pin) Fast connector. You can connect up to 15 SCSI devices (seven of which can be 8-bit Narrow devices) to a maximum of two connectors in various configurations.




**Caution:** *Do not* connect SCSI devices to all three connectors of a PowerDomain 2940UW.



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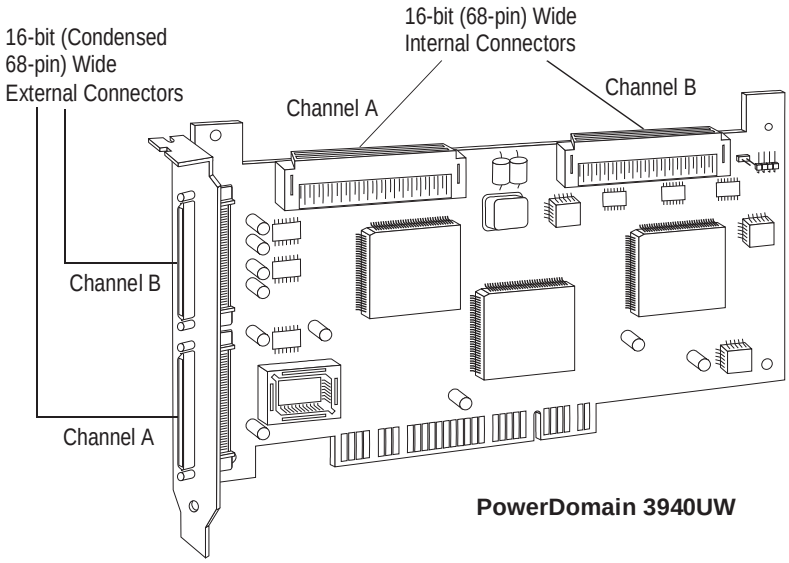
The PowerDomain 3940UW has one internal 16-bit (68-pin) and one external 16-bit (condensed 68-pin) Fast and Wide connector per channel (channels A and B). You can connect up to 15 SCSI devices (seven of which can be 8-bit Narrow devices) to each channel in any combination, for a maximum of 30 devices per card.




**PowerDomain 3940UW**

The PowerDomain 2940UW / 3940UW supports single-ended SCSI devices only.

**Caution:** The PowerDomain 2940UW / 3940UW accelerator card supports only *single-ended* SCSI devices. *Differential* devices might be damaged if you connect them to the PowerDomain 2940UW / 3940UW chain. Refer to your SCSI device documentation to determine if a device is single-ended or differential.



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## Choosing SCSI Cables

Always use high-quality SCSI cables to connect the PowerDomain 2940UW / 3940UW to devices on the SCSI chain. Poor-quality cables can cause data corruption and other problems.

The round cables used for external SCSI devices vary widely in quality and electrical characteristics. Be sure external SCSI cables meet SCSI-2 standards. (Your cable reseller should be able to verify this.)

When purchasing external SCSI cables

- Choose external round-shielded cables with a single-ended impedance range of 80 to 110 ohms.
- Make sure all cables in the chain have the same wire gauge: at least #28 AWG for the PowerDomain 2940UW and at least #30 AWG for the PowerDomain 3940UW. (The gauge is usually printed on the cable.)

**Note:** Adaptec sells high-quality internal and external SCSI-2 cables, which you can purchase by calling Adaptec at the number listed on page iii.

To assure reliable operation, the total length of the SCSI chain, including both internal and external cabling, should not exceed 6 m (19.5 ft).

When calculating the total length of the SCSI chain, consider the following:

- The length of cables inside external cases. A drive might have up to 12 in. of cabling inside.
- The number of connections. One connection equals approximately 6 in.

- Any change in cable impedance, including the following
  - A change in wire gauge from one cable to the next
  - A change in the type of wire from one cable to the next
  - A change in the type of insulation from one cable to the next
  - A change from twisted-pair to ribbon cables, which often happens in drive cases

  The effects of impedance changes will reduce the maximum reliable length of the SCSI chain.
- The maximum length of stub (drop) cables is 10 cm (4 in.), and the minimum spacing between stub cables is 30 cm (12 in.).
- Flat single-ended cables should be spaced at least 0.05 in. from the cable itself (when the cable is folded), from other cables, and from any metallic part of the system.

## Connecting Internal SCSI Devices

**Note:** If you are not installing internal SCSI devices, turn to *Connecting External SCSI Devices—Tower Models* on page 2-34 or *Connecting External SCSI Devices—Desktop Models* on page 2-41.

Before installing an internal SCSI device, refer to the documentation included with the device for installation instructions. Sometimes a SCSI device must be installed before you can connect it to the accelerator card.



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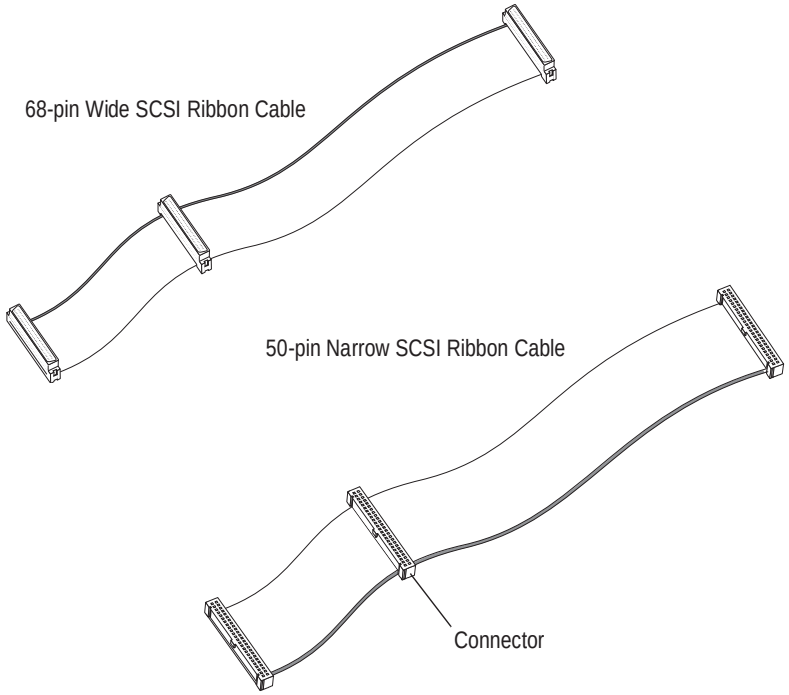
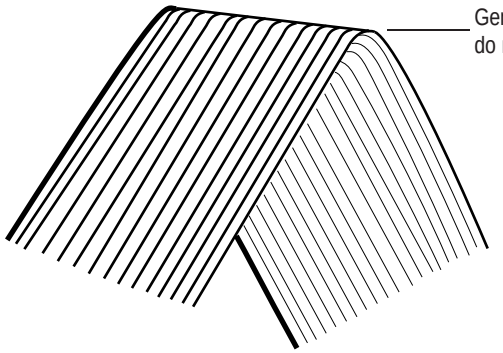
To attach devices to the 50-pin internal connector of the PowerDomain 2940UW, use a 50-pin Narrow ribbon cable. To attach devices to the 68-pin internal connectors of the PowerDomain 2940UW / 3940UW, use 68-pin Wide ribbon cables. Make sure your SCSI ribbon cable(s) have enough connectors to accommodate all your internal SCSI devices.



**Caution:** When arranging ribbon cables so they'll fit in the computer, be careful not to crease them.



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