

Hardware Reference Guide

Compaq Deskpro EN Series of Personal Computers
Small Form Factor Models



COMPAQ



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of Personal Computers

Small Form Factor Models

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Hardware Reference Guide

Compaq Deskpro EN Series of Personal Computers Small Form Factor Models

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CONTENTS

chapter 1

Installation Guidelines

Installation Sequence	1-1
When to Reconfigure the Computer	1-3

chapter 2

Hardware Upgrades

Serviceability Features.....	2-1
Drawer Installation Method	2-1
Removing the Computer Cover	2-2
Removing the Expansion Card Cage	2-4
Installing an Expansion Card	2-5
Installing Additional Memory	2-7
DIMMs.....	2-7
Memory Module Installation	2-7
Upgrading the Hard Drive	2-10
Removing and Installing Drives	2-12
Removing a CD-ROM Drive	2-12
Installing an Optional DVD-ROM Drive.....	2-14
Smart Cover Lock.....	2-16
Using the Smart Cover FailSafe Key	2-16

appendix a

Specifications	A-1
-----------------------------	-----

appendix b

Hard Drive Installation Guidelines

Using the Cable-Select Feature with Ultra ATA Devices	B-1
Installing SCSI Devices	B-2
Guidelines for Installing Optional SCSI Devices	B-2
Cabling for Optional SCSI Devices	B-4
Using SCSI <i>Select</i> with SCSI Devices	B-5

appendix c

Battery Replacement	C-1
----------------------------------	-----

appendix d

Security Lock Provisions

Installing a Cable Lock.....	D-1
------------------------------	-----

appendix e

Electrostatic Discharge

Preventing Electrostatic Damage.....	E-1
Grounding Methods.....	E-2

appendix f

Routine Computer Care and Shipping Preparation

Routine Computer Care	F-1
CD-ROM Drive Precautions.....	F-2
Operation	F-2
Cleaning	F-2
Safety	F-2
Shipping Preparation	F-3

<i>Index</i>	I-1
---------------------------	-----

chapter 1

INSTALLATION GUIDELINES

This guide explains how to remove the computer cover or access panel and install the following optional equipment upgrades:

- Additional system memory
- Expansion card
- Optional drive
- Security lock
- Replacement battery

This chapter includes information about the general installation sequence for Deskpro personal computers, and about when to reconfigure the computer to ensure that it recognizes the newly installed equipment.

Installation Sequence

It is very important that you follow this sequence of steps to ensure the proper installation of any optional equipment.

1. If your computer includes the Smart Cover Lock feature and you have set the lock, use Computer Setup to unlock the lock and disable the Smart Cover Sensor.

For more information about Computer Setup, refer to the *Computer Setup* guide.

2. If the computer is already on, turn it off and disconnect the power cord from the wall outlet.



WARNING: To reduce the risk of personal injury from electrical shock and/or hot surfaces, be sure to disconnect the power cord from the wall outlet, and allow the internal system components to cool before touching.



WARNING: To reduce the risk of electrical shock, fire, or damage to the equipment, do not plug telecommunications/telephone connectors into the network interface controller (NIC) receptacles.



CAUTION: Static electricity can damage the electronic components of the computer or optional equipment. Before beginning these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object. Refer to Appendix E, “Electrostatic Discharge,” for more information.

3. Open the computer by removing its outside cover. Refer to the procedures for removing the computer cover or access panel.
4. Install any optional equipment. Refer to the applicable sections of this guide or to the documentation provided with the optional equipment for instructions.
5. Replace the computer cover.
6. Turn on the monitor, computer, and any devices you want to test.
7. Reconfigure the computer, if necessary. Refer to the *Computer Setup* guide for instructions about using Computer Setup.

If you normally lock the Smart Cover Lock, use Computer Setup to relock the lock and enable the cover removal sensor.

When to Reconfigure the Computer

System configuration is the process of specifying the devices and programs that make up a computer system. When you add or remove optional equipment, the computer must be reconfigured to recognize these changes.

Windows 95 and later operating systems automatically recognize all Plug and Play devices installed. However, if the device is not a Plug and Play device or is not automatically detected after installation, follow these instructions:

- In Windows 95 and later operating systems, select the Add New Hardware icon in the Control Panel and follow the instructions on the screen.
- To reconfigure the computer in Windows NT version 4.0, use the software utility provided with the newly installed hardware.

chapter 2

HARDWARE UPGRADES

Serviceability Features

Your computer allows for easier upgrades and service with a slide-out system board and tool-less access to most internal components. Quick release cover latches, located on the sides of the computer, allow easy removal of the computer cover without the use of tools.

Drawer Installation Method

When installing the computer chassis in a drawer, the following conditions must be met to ensure proper air flow:

- At least 3 inches (7.6 cm) of clear space between the back of the drawer and anything behind it, such as a wall or the back panel of a desk.
- At least two 2-inch (5.1-cm) diameter holes in the back of the drawer. One hole must be immediately behind the power supply for exhaust air, and the other should be used for routing the cables.



CAUTION: Cables should not be run through the exhaust air hole.

- At least nine holes in the front drawer panel or in the bottom of the drawer in front of the chassis for fresh air intake. The diameter of the holes must be between 0.38 and 0.5 inch (1.0 and 1.3 cm).

- If vent holes are located in the bottom of the mounting drawer, allow at least 1 inch (2.54 cm) of clear space below the drawer to ensure proper air flow.
- At least 1 inch (2.54 cm) of clear space above the top of the chassis.

Removing the Computer Cover

To install optional equipment, you must remove the computer cover to gain access to internal components. The quick release cover latches located on the sides of the computer allow easy removal of the computer cover without the use of tools. To remove the cover, follow these steps:

1. If you have locked the Smart Cover Lock, use Computer Setup to unlock it.
2. Turn off the computer and any external devices.
3. Disconnect the power cord from the power outlet, and disconnect any external devices.

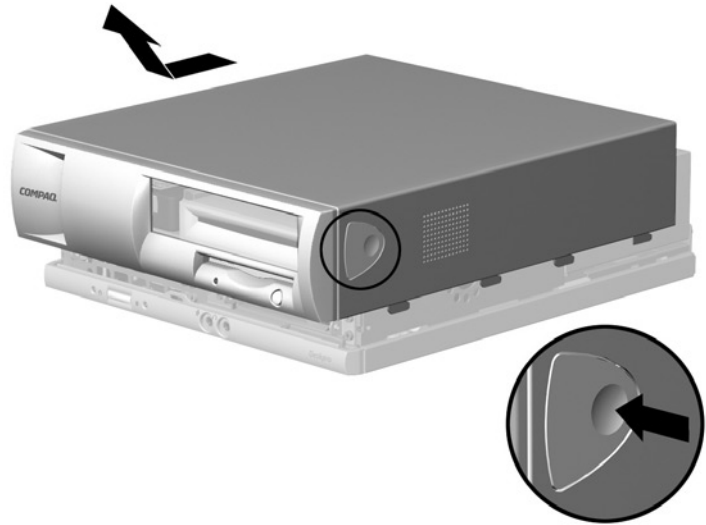


WARNING: Before removing the computer cover, ensure that the computer is turned off and that the power cord is disconnected from the electrical outlet.

4. Press in the button on each side of the front bezel to release the quick release cover latches.
5. As you slide the computer cover forward, release the buttons and allow them to return to the original position, then lift the cover up and off the unit.



To replace the cover, reverse this procedure.

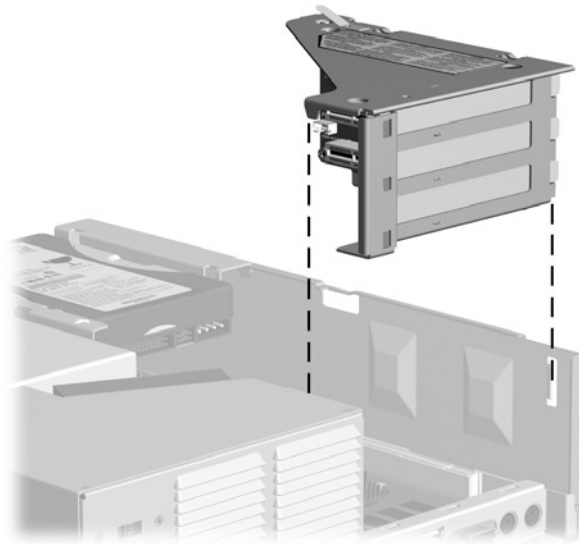


Removing the Computer Cover

Removing the Expansion Card Cage

To remove the expansion card cage:

1. If you have locked the Smart Cover Lock, use Computer Setup to unlock it.
2. Turn off the computer and any external devices.
3. Disconnect the power cord from the power outlet, and disconnect any external devices.
4. Remove the computer cover.
5. Disconnect all cables attached to the system board.
6. Pull the expansion card cage straight up to remove it from the chassis.



Removing the Expansion Card Cage

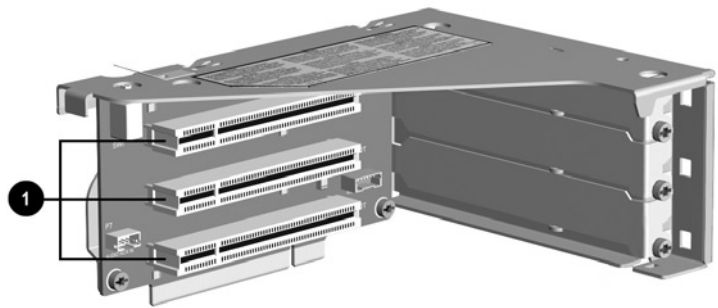


When reinstalling the expansion card cage, ensure that the tab on the brace latches into the slot on the side of the power supply.

Installing an Expansion Card

Your computer has three PCI expansion slots **1**. Each slot can accommodate an expansion card up to 6.88 inches (17.48 cm) in length. To install an expansion card:

1. If you have locked the Smart Cover Lock, use Computer Setup to unlock it.
2. Turn off the computer and any external devices.
3. Disconnect the power cord from the power outlet, then disconnect any external devices.
4. Remove the computer cover.
5. Remove the expansion card cage and identify the slot into which you want to insert the expansion card.



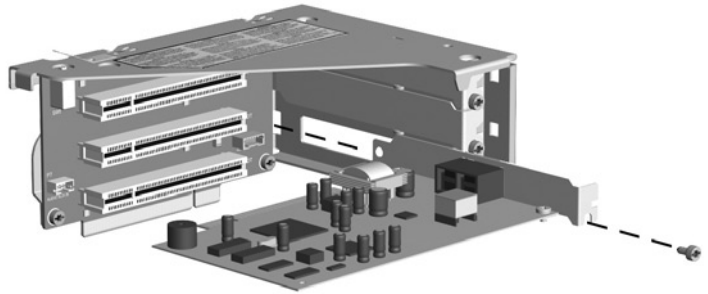
Location of Expansion Slots in the Expansion Card Cage

6. Remove the retaining screws that secure the slot cover to the expansion card cage.
7. Remove the slot cover from the expansion card cage.



Removing the Expansion Slot Cover

8. Install the expansion card.



Installing an Expansion Card



When you install an expansion card, make sure you press firmly on the card so that the whole connector seats properly in the expansion card slot.

9. Reinstall the retaining screws to secure the card.

Installing Additional Memory

The computer comes with:

- Synchronous dynamic random access memory (SDRAM) dual inline memory modules (DIMMs)

DIMMs

The memory sockets on the Intel 815e chipset-based system board can be populated with industry-standard DIMMs. These memory module slots are populated with at least one preinstalled memory module. To achieve the maximum memory support, you may be required to replace the preinstalled DIMM with a higher capacity DIMM.

For proper system operation, the DIMMs must be industry-standard 168-pin, unbuffered PC100- or PC133- compliant SDRAM DIMMs, depending on the model. The SDRAM DIMMs must support CAS Latency 2 or 3 (CL = 2 or CL = 3). They must also contain the mandatory Joint Electronic Device Engineering Council (JEDEC) Serial Presence Detect (SPD) information. DIMMs constructed with x4 SDRAM are not supported; the system will not start using unsupported DIMMs.

The Intel 815e chipset supports both PC100 and PC133 SDRAM DIMMs. PC133 DIMMs should be used for optimal operation. If both PC100 and PC133 SDRAM DIMMs are installed in a computer, the system memory will run at the lower 100Mhz speed. Some configurations of PC133 SDRAMs may run at 100Mhz, instead of 133Mhz.

Memory Module Installation



CAUTION: Your memory module sockets have gold metal contacts. When upgrading your memory, it is important to use memory modules with gold metal contacts to prevent corrosion and/or oxidation resulting from having incompatible metals in contact with each other.



CAUTION: Static electricity can damage the electronic components of the computer or optional cards. Before beginning these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object. Refer to Appendix E, "Electrostatic Discharge," for more information.



CAUTION: When handling a memory module, be careful not to touch any of the contacts. Doing so may damage the module.

1. If you have locked the Smart Cover Lock, use Computer Setup to unlock the lock.
2. Shut down the operating system properly, then turn off the computer and any external devices, then disconnect the power cord from the power outlet.
3. Remove the computer cover.
4. Rotate the easy access drive bay to an upright position.

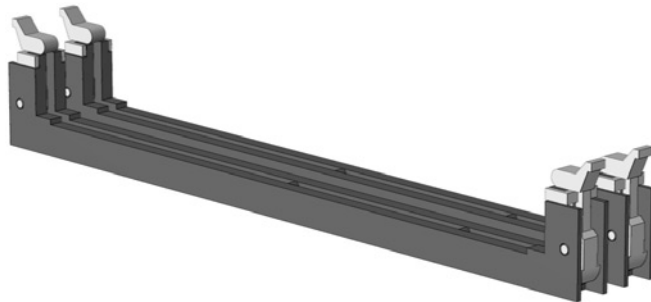


CAUTION: Check the position of all cables and wires before raising or lowering the easy access drive bay to prevent damage.



Rotating the Easy Access Drive Bay

5. Locate the memory module sockets.

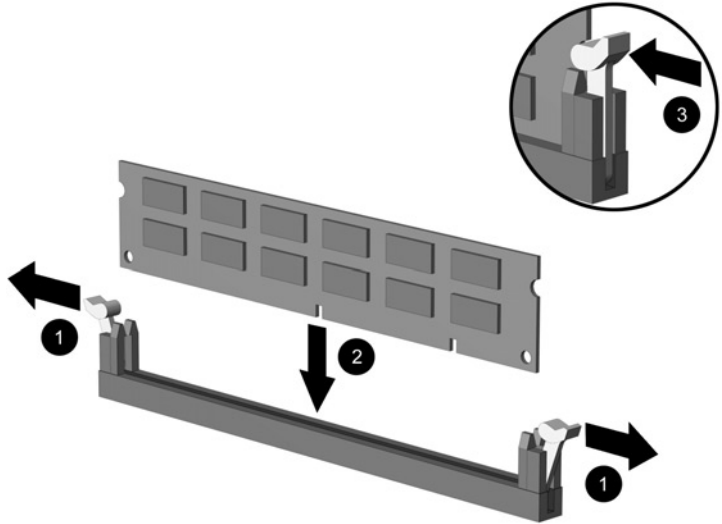


DIMM Sockets



WARNING: To reduce risk of personal injury from hot surfaces, allow the internal system components to cool before touching.

6. Open both latches of the memory module socket ❶, and insert the memory module into the socket ❷.



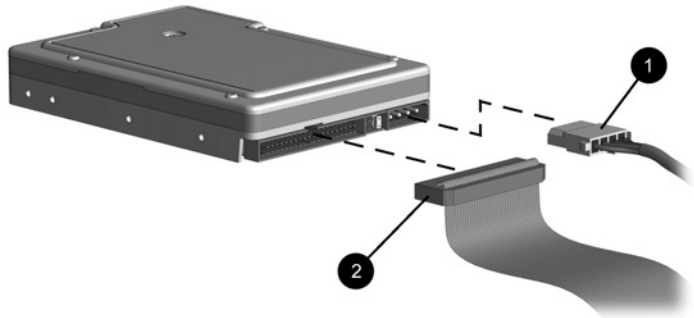
Installing a DIMM

7. Begin by installing a module into the socket nearest the preinstalled module, and install the modules following the numerical order of the sockets.
8. A memory module can be installed in only one way. Match the notch on the module with the tab on the memory socket. Push the module down into the socket, ensuring that the module is fully inserted and properly seated ❸.
9. Repeat step 6 for any additional modules that you want to install.
10. Replace the computer cover.
11. If you normally lock the Smart Cover Lock, use Computer Setup to relock the lock and enable the Smart Cover Sensor.
12. The computer should automatically recognize the additional memory the next time you power on the computer.

Upgrading the Hard Drive

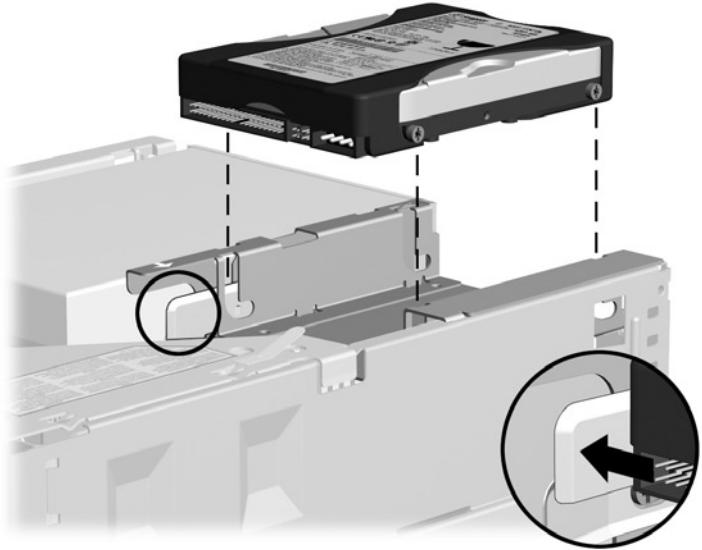
The 3.5-inch hard drive is located on the left side of the computer. To remove and replace the drive:

1. If you have locked the Smart Cover Lock, use Computer Setup to unlock it.
2. Turn off the computer and any external devices.
3. Disconnect the power cord from the power outlet, and disconnect any external devices.
4. Remove the computer cover.
5. Disconnect the ❶ power cable and ❷ signal cable from the back of the drive.



Disconnecting Cables from the Hard Drive

6. Push the locking lever on the right side of the drive to the right (facing the front of the computer.) Slide the drive to the rear of the bay, then lift the drive from the bay.



Removing the Hard Drive (Shown from the Rear of the Chassis)



When replacing the hard drive, transfer the four screws from the old drive to the new one. The screws take the place of drive rails.



If you have installed a hard drive that is not automatically recognized by the computer, refer to Chapter 1, “Installation Guidelines.”



CAUTION: To prevent loss of work and damage to the computer or drive:

- If you are inserting or removing a hard drive, turn off the computer. Do not remove a hard drive while the computer is on or in standby mode.
 - Before handling a drive, ensure that you are discharged of static electricity. While handling a drive, avoid touching the connector. For more information about preventing electrostatic damage, refer to Appendix E, “Electrostatic Discharge.”
 - Handle a drive carefully, do not drop it.
 - Do not use excessive force when inserting a drive.
 - Avoid exposing a hard drive to liquids, temperature extremes, or products that have magnetic fields such as monitors or speakers.
 - If a drive must be mailed, place the drive in a bubble-pack mailer or other suitable protective packaging and label the package “Fragile: Handle With Care.”
-

Removing and Installing Drives

The computer has two external drive bays. The first external bay contains a preinstalled diskette drive. This section describes how to remove the CD-ROM drive and install a DVD-ROM drive into the second external bay.

To verify the type and size of the mass storage devices installed in your computer, run Compaq Computer Setup. Refer to the *Computer Setup Guide* for more information.

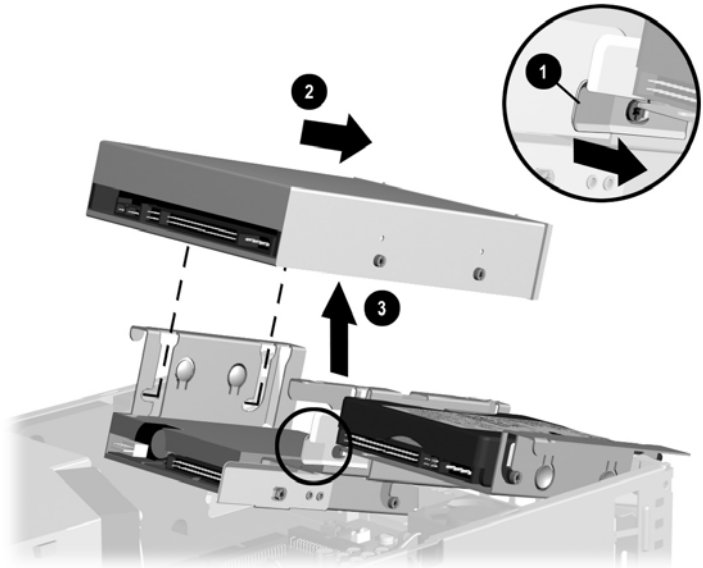
Removing a CD-ROM Drive



CAUTION: All removable media should be taken out of the drives before removing the drive from the computer.

1. If you have locked the Smart Cover Lock, use Computer Setup to unlock it.
 2. Turn off the computer and any external devices.
 3. Disconnect the power cord from the power outlet, and disconnect any external devices.
 4. Remove the computer cover.
 5. Rotate the drive cage to the upright position.
 6. Rotate the power supply to the upright position.
-

7. Disconnect the audio, signal and drive power cables. The other end of the audio cable should remain connected to the audio connector on the system board.
8. Pull the drive release latch away from the drive ❶.
9. Slide the drive toward the front of the drive cage ❷, then lift the drive out of the computer ❸.



To replace the drive, reverse the removal procedures.



When replacing the drive, transfer the four screws from the old drive to the new one. The screws take the place of drive rails.

Installing an Optional DVD-ROM Drive

To install an optional DVD-ROM drive:

1. Remove the CD-ROM drive if present.
2. Install two guide screws on each side of the drive.



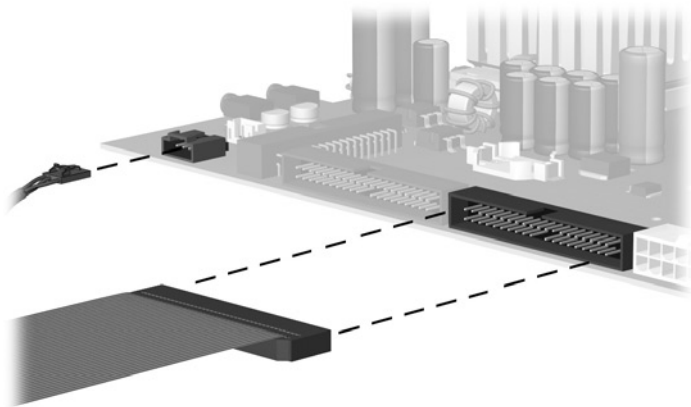
Installing Guide Screws in the DVD-ROM Drive

3. Position the guide screws on the drive into the J-slots in the drive bay. Slide the drive toward the front of the computer.



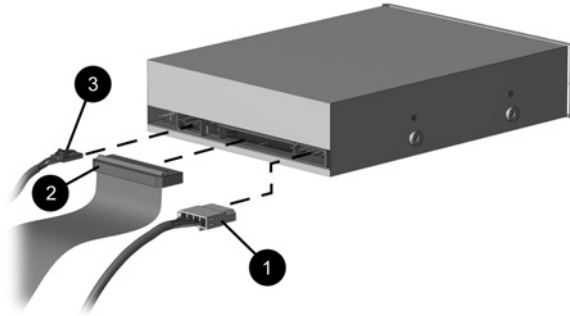
Ensure that the spring-loaded locking lever properly secures the drive.

4. Raise the easy access drive bay to the upright position and connect the flat ribbon cable and audio cable to the system board.



Connecting the Flat Ribbon Cable and Audio Cable

5. Connect the power cable ❶, flat ribbon cable ❷, and audio cable ❸ to the rear of the DVD-ROM drive.
6. Return the easy access drive bay to the normal position.



Connecting the Flat Ribbon, Audio, and Power Cables to the DVD-ROM Drive

7. Remove the bezel blank from the front bezel, if necessary.
8. Replace the computer cover.
9. The system will automatically recognize the drive and reconfigure the computer.



CAUTION: When servicing the computer, ensure that cables are placed in their proper locations during the reassembly process. Improper cable placement can damage the computer.



CAUTION: Use only 3/16-inch or 5-mm long screws as guide screws. Longer screws can damage the internal components of the drive.

Smart Cover Lock

The Smart Cover Lock is a software-controllable cover lock, controlled by the setup password. This lock prevents unauthorized access to the internal components. The computer ships with the Smart Cover Lock in the unlocked position. For more information about locking the Smart Cover Lock, refer to the *Desktop Management* guide.

Using the Smart Cover FailSafe Key

If you enable the Smart Cover Lock and cannot enter your password to disable the lock, you will need a Smart Cover FailSafe Key to open the computer cover. You will need the key in any of the following circumstances:

- Power outage
- Startup failure
- PC component (e.g., processor or power supply) failure
- Forgotten password



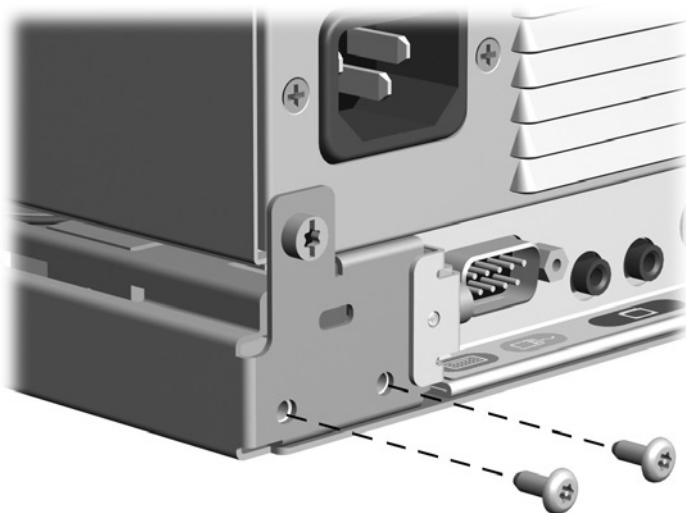
CAUTION: The Smart Cover FailSafe Key is a specialized tool available from Compaq. Be prepared; order this key before you need one.

To obtain a FailSafe Key:

- Contact your authorized Compaq reseller or service provider.
- Refer to the Compaq World Wide Web site (www.compaq.com) for ordering information.
- Call the appropriate number listed in the warranty.

To open the computer cover:

1. Turn off the computer and any external devices.
2. Disconnect the power cord from the power outlet, and disconnect any external devices.
3. Using the Smart Cover FailSafe Key, remove the two tamper-proof screws that secure the Smart Cover Lock to the chassis.



Removing the Smart Cover Lock Screws

4. Remove the computer cover.

To reattach the Smart Cover Lock, secure the lock in place with the tamper-proof screws.

appendix A

SPECIFICATIONS

Compaq Deskpro EN, Small Form Factor

Desktop Dimensions

Height	3.8 in	9.7 cm
Width	12.5 in	31.8 cm
Depth	14.6 in	37.1 cm

Approximate Weight

20 lb	9.1 kg
-------	--------

Weight Supported (maximum distributed load)

100.0 lb	45.5 kg
----------	---------

Temperature Range

Operating	50° to 95°F	10° to 35°C
Nonoperating	-4° to 140°F	-20° to 60°C

Relative Humidity (noncondensing)

Operating	8-90%	8-90%
Nonoperating	5-95%	5-95%

Maximum Altitude (unpressurized)

Operating	10,000 ft	3048 m
Nonoperating	30,000 ft	9144 m

Power Supply

Operating Voltage Range	90-132 VAC	180-264 VAC
Rated Voltage Range	100-127 VAC	200-240 VAC
Rated Line Frequency	50-60 Hz	50-60 Hz

Power Output

120 W	120 W
-------	-------

Rated Input Current (maximum)

4 A	2 A
-----	-----

Heat Dissipation

Maximum	630 Btu/hr	160 kg-cal/hr
Nominal	315 Btu/hr	80 kg-cal/hr

appendix B

HARD DRIVE INSTALLATION GUIDELINES

Using the Cable-Select Feature with Ultra ATA Devices

Optional drives are available from Compaq in kits that include a special drive cable. The configuration of the drives employs a cable-select feature that identifies the drives as device 0 (primary drive) or device 1 (secondary drive). The computer recognizes device 0 as the drive connected to the short segment of the drive cable (farthest from the system board), and device 1 as the drive connected to the long segment of the drive cable (closest to the system board).

When using an 80 conductor Ultra ATA cable, connect the colored connectors as follows:

- blue—system board (end)
- gray—device 1 (middle)
- black—device 0 (end)

Drive installation requires no jumper setting changes on the existing or optional drives. All Compaq drives have the jumpers preset for cable-select installation.



If installing a second device on the primary controller, you must use an 80 conductor Ultra ATA cable for optimal performance. This cable is standard on select models.

Installing SCSI Devices

Select models feature a Wide Ultra160 SCSI host adapter that supports up to fifteen wide internal and external SCSI devices. Select models come with an internal SCSI hard drive preinstalled. Additional high-performance SCSI devices can be added to these select models.

Guidelines for Installing Optional SCSI Devices

When installing additional SCSI devices, you must adhere to the following guidelines:

- The Wide Ultra160 SCSI host adapter supports up to 15 wide SCSI devices.
- Every SCSI device must have a unique identification (ID) number (0 - 15). The SCSI host adapter identifies signals to and from a SCSI device by its SCSI ID number rather than its location. Moving a SCSI device from one position to another on the SCSI chain does not affect the communication between the controller and the SCSI device. The reserved and available SCSI ID numbers for SCSI devices are as follows:
 - ❑ 0 is reserved for the hard drive.
 - ❑ 1 through 4 are available.
 - ❑ 5 is reserved for a CD-ROM drive.
 - ❑ 6 is available.
 - ❑ 7 is reserved for the SCSI host adapter.
 - ❑ 8 - 15 are available.

- Every SCSI chain or circuit must be terminated (closed) at both ends. Termination can be accomplished by using the terminating feature on the device or by using a terminated cable.



Some devices may not have terminating jumpers on the device. Termination on these devices must be achieved with terminated cable.

Turn on an external SCSI device before turning on power to the computer. This enables the system board controller to recognize the external SCSI device and automatically reset. When an external SCSI device is connected to the external SCSI connector on the rear panel of the computer, that device becomes the end of the SCSI chain and must be terminated.

- The system accommodates a combination of internal and external SCSI devices, such as SCSI tape, CD-ROM drives, and hard drives.



When an IDE hard drive and SCSI hard drive are both installed, the system can boot only from the IDE hard drive.

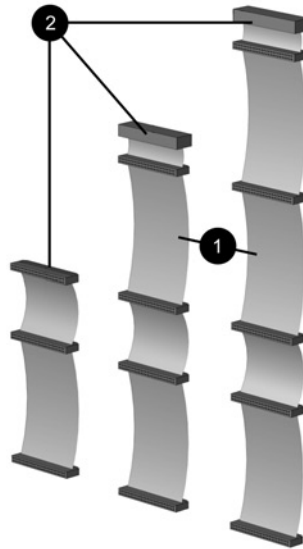


Before you can install a SCSI device, you must first verify the SCSI ID of the device and, if necessary, set the SCSI ID to a new number. Be sure that each SCSI device on the SCSI chain has a unique SCSI ID number.

Second, you must determine if the device ought to have termination enabled or disabled. Set the termination if necessary.

Cabling for Optional SCSI Devices

Depending on the model, your computer may include one of the SCSI cables shown in the next illustration.



SCSI Cable Options

Because your computer comes preconfigured, cable configuration does not become a consideration until you decide to add an optional SCSI device.

- ❶ Computers with 2-, 3-, and 4-peripheral SCSI cables come with a terminator ❷ on the end of the cable. The connector on the opposite end of the cable always connects to the system board. All SCSI devices connected with these cables must have their termination disabled.



Some devices may not have terminating jumpers on the device. Termination on these devices must be achieved with terminated cable.

When installing a SCSI device, be sure to route the SCSI cable over the expansion board cage, between the raised areas.

For additional information about installing optional SCSI devices, refer to the documentation that comes with the device or contact your Compaq authorized dealer, reseller, or service provider.

Using SCSISelect with SCSI Devices

The Wide Ultra160 SCSI host adapter includes the SCSISelect utility to configure the host adapter and to run SCSI disk utilities. To run the SCSISelect utility:

- In Post Messages Enabled mode: Press Ctrl+A when the Press <Ctrl><A> for SCSISelect Utility message appears during POST.
- In Post Messages Disabled mode: When the Compaq logo screen appears, press any key to exit the logo screen. Immediately after exiting the logo screen, press Ctrl+A to access the SCSISelect utility.

A menu appears with the following options:

■ **Configure/View Host Adapter Settings**

- ☐ SCSI Bus Interface Definitions
 - Host Adapter SCSI ID
 - SCSI Parity Checking
 - Host Adapter SCSI Termination
- ☐ Additional Options
 - Boot Device Options
 - SCSI Device Configuration
 - Advanced Configuration Options

■ **SCSI Disk Utilities**

Lists all SCSI devices and SCSI ID numbers



For information about configuring POST message display status, refer to the *Computer Setup* guide.

appendix C

BATTERY REPLACEMENT

The battery that comes with your computer provides power to the real-time clock and has a lifetime of about three years. When replacing the battery, use an equivalent 3-volt lithium coin cell battery.



WARNING: Your computer contains an internal lithium manganese dioxide, vanadium pentoxide, or alkaline battery or battery pack. There is a risk of fire and burns if the battery pack is not handled properly. To reduce the risk of personal injury:

Do not attempt to recharge the battery.

Do not expose to temperatures higher than 60°C (140°F).

Do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water.

Replace only with the Compaq spare designated for this product.



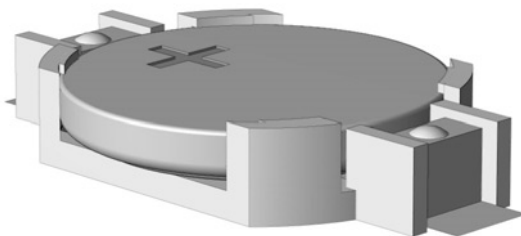
Batteries, battery packs, and accumulators should not be disposed of together with the general household waste. In order to forward them to recycling or proper disposal, please use the public collection system or return them to Compaq, your authorized partners, or their agents.

1. If you have locked the Smart Cover Lock, use Computer Setup to unlock the lock and disable the Smart Cover Sensor.
2. Shut down the operating system properly, turn off the computer and any external devices, disconnect the power cord from the electrical outlet, and remove the computer cover or access panel.



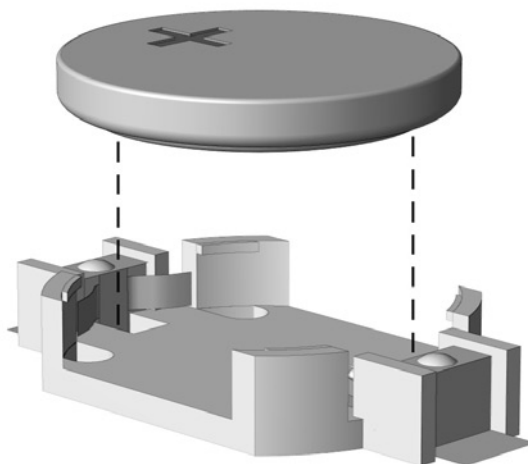
It may be necessary to remove an expansion card to gain access to the battery.

3. Locate the battery and battery holder on the system board, as shown in the following illustration.



Battery and Battery Holder

4. Lift the battery out of its holder.



Removing the Coin Cell Battery

5. Slide the replacement battery into position, positive side up.
The battery holder automatically secures the battery in the proper position.

6. Replace the computer cover or access panel.
7. Plug in the computer and turn on power to the computer.
8. Reset the date and time, your passwords, and any special system setups, using Compaq Computer Setup. Refer to the *Computer Setup* guide.

If you normally lock the Smart Cover Lock, use Computer Setup to relock the lock and enable the Smart Cover Sensor.

appendix D

SECURITY LOCK PROVISIONS

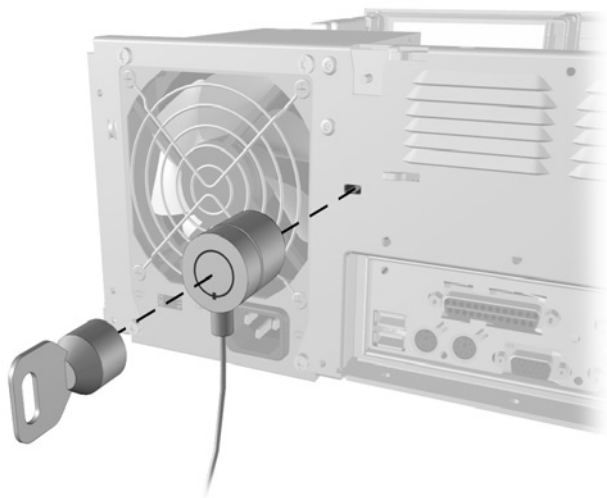
Installing a Cable Lock

Depending on the model, the rear panel of the computer accommodates a cable lock so that the computer can be physically secured to a work area.

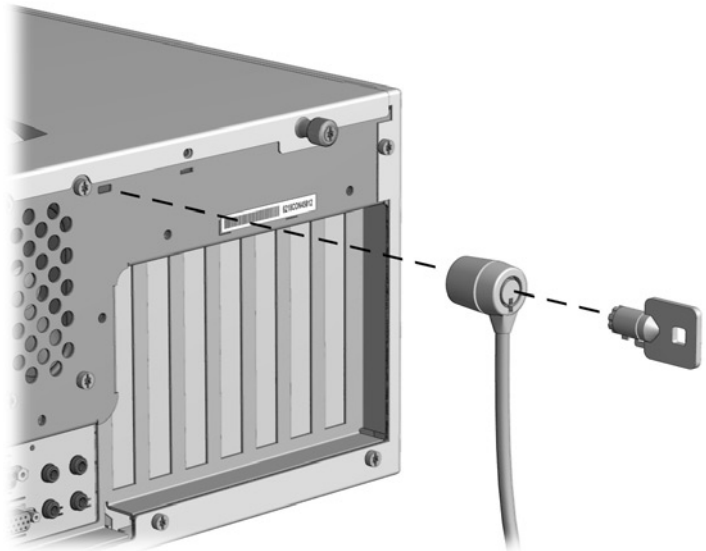


The cable lock can be purchased from Kensington Microware Limited or Compaq authorized dealers, resellers, and service providers. Ask for the Kensington MicroSaver Security System, Model 64068.

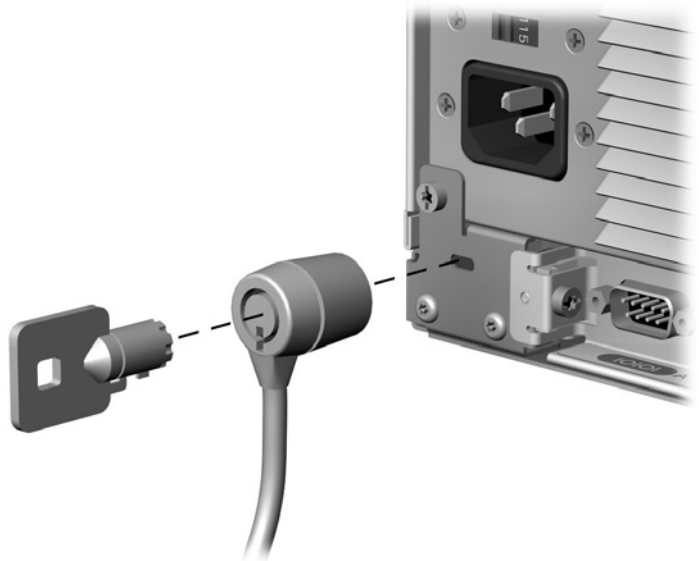
1. Loop the cable around a heavy, fixed object to which you want to secure the computer.
2. Insert the cable lock end of the cable through the loop end of the cable.
3. Insert the lock into the appropriate slot on the rear of the computer and lock with the key.



Compaq Deskpro EN, Slim Desktop



Compaq Deskpro EN, Convertible Minitower



Compaq Deskpro EN, Small Form Factor

appendix E

ELECTROSTATIC DISCHARGE

A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

Preventing Electrostatic Damage

To prevent electrostatic damage, observe the following precautions:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

Grounding Methods

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 Mohm +/- 10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
- Use heelstraps, toestraps, or bootstraps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, contact your Compaq authorized dealer, reseller, or service provider.



For more information on static electricity, contact your Compaq authorized dealer, reseller, or service provider.

appendix F

ROUTINE COMPUTER CARE AND SHIPPING PREPARATION

Routine Computer Care

Follow these suggestions to take care of your computer and monitor:

- Operate the computer on a sturdy, level surface. Leave a 3-inch (7.6-cm) clearance at the back of the system unit and above the monitor to permit the required airflow.
- Never operate the computer with the cover or side panel removed.
- Never restrict the airflow into the computer by blocking the front vents or air intake. Do not place the keyboard, with the keyboard feet down, directly against the front of the desktop unit as this also restricts airflow.
- Keep the computer away from excessive moisture, direct sunlight, and extremes of heat and cold. For information about the recommended temperature and humidity ranges for your computer, refer to Appendix A, “Specifications,” in this guide.
- Keep liquids away from the computer and keyboard.
- Never cover the ventilation slots on the monitor with any type of material.

- Turn off the computer before you do either of the following:
 - Wipe the exterior of the computer with a soft, damp cloth as needed. Using cleaning products may discolor or damage the finish.
 - Occasionally clean the air vents on the front and back of the computer. Lint and other foreign matter can block the vents and limit the airflow.

CD-ROM Drive Precautions

Be sure to observe the following guidelines while operating or cleaning your CD-ROM drive.

Operation

- Do not move the drive during operation. This may cause it to malfunction during reading.
- Avoid exposing the drive to sudden changes in temperature, as condensation may form inside the unit. If the temperature suddenly changes while the drive is on, wait at least one hour before you turn off the power. If you operate the unit immediately, it may malfunction while reading.
- Avoid placing the drive in a location that is subject to high humidity, extreme temperatures, mechanical vibration, or direct sunlight.

Cleaning

- Clean the panel and controls with a soft, dry cloth or a soft cloth lightly moistened with a mild detergent solution. Never spray cleaning fluids directly on the unit.
- Avoid using any type of solvent, such as alcohol or benzene, which may damage the finish.

Safety

If any object or liquid falls into the drive, immediately unplug the computer and have it checked by an authorized Compaq service provider.

Shipping Preparation

Follow these suggestions when preparing to ship your computer:

1. Back up the hard drive files onto PD discs, tape cartridges, or diskettes. Be sure that the backup media is not exposed to electrical or magnetic impulses while stored or in transit.



The hard drive locks automatically when the system power is turned off.

2. Remove and store any program diskettes from the diskette drives.
3. Insert a blank diskette into the diskette drive to protect the drive while in transit. Do not use a diskette on which you have stored or plan to store data.
4. Turn off the computer and external devices.
5. Disconnect the power cord from the electrical outlet, then from the computer.
6. Disconnect the system components and external devices from their power sources, then from the computer.



Ensure that all boards are seated properly and secured in the board slots before shipping the computer.

7. Pack the system components and external devices in their original packing boxes or similar packaging with sufficient packing material to protect them.



For environmental nonoperating ranges, refer to Appendix A, “Specifications,” in this guide.

INDEX

C

- computer access panel, removing, 2-2
- cover
 - key, 2-16
 - removing, 2-2

D

- DIMMs (dual inline memory modules)
 - installing, 2-7
- drawer installation of computer, 2-1
- drive
 - installing optional, 2-10, 2-12
 - installing optional 5.25-inch, 2-14
- dual inline memory modules (DIMMs)
 - installing, 2-7
- DVD-ROM drive, installing, 2-14

E

- easy access drive bay, 2-8
- expansion card
 - cage, 2-4
 - installing, 2-5

- expansion slots, 2-5

I

- installation sequence, 1-1
- installing the computer
 - drawer installation, 2-1

M

- memory
 - installing additional, 2-7
 - module sockets, 2-8

O

- optional equipment
 - adding or removing, 1-3

P

- Plug and Play, 1-3

S

- security
 - Smart Cover Lock, 2-16
- slots, expansion, 2-5
- Smart Cover FailSafe Key, 2-16
- Smart Cover Lock, 2-16
- system configuration, 1-3



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