Chapter 5. Service replaceable units

This chapter describes the removal of server components.

Important: The field replaceable unit (FRU) procedures are intended for trained servicers who are familiar with IBM products. See the parts listing in Chapter 7, "Parts listing, BladeCenter Type 8677," on page 77 to determine if the component being replaced is a customer replaceable unit (CRU) or a FRU.

Note: Blade modules (I/O, management, power), servers, and blowers must be replaced during service within two minutes.

Replacing a blower module

Your BladeCenter comes with two hot-swap blowers for cooling redundancy. The blower speeds vary depending on the thermal load. If a blower fails, the remaining blower continues to cool the BladeCenter and blades.

Important:

1. The failed blower module must be replaced within two minutes during service.
2. If ambient temperature is 72° F or below, the BladeCenter blowers will run at 30% of their maximum rotational speed, increasing their speed as required to control internal BladeCenter temperature. If ambient temperature is above 72° F, the blowers will run at 80% of their maximum rotational speed increasing their speed as required to control internal BladeCenter temperature.

Complete the following steps to replace a blower in the BladeCenter.

1. Press the release lever on the blower handle.
2. Grasp the handle and pull the blower module out of the bay.
3. Slide another blower module into the bay, pushing it until the release lever clicks; the release lever secures the blower module in the bay.

Release latch

Handle
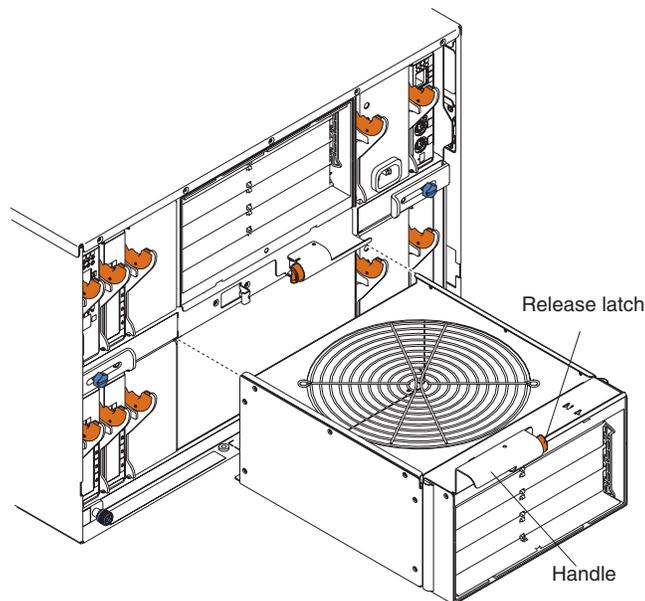
Media tray

This section describes removing and opening the media tray.

Removing the media tray

Complete the following steps to remove the media tray.

Note:
- Read "Installation guidelines" on page 31.
- Read the safety notices at "Safety information" on page 85.
- Read "Handling electrostatic discharge-sensitive devices" on page 88.
1. Remove the BladeCenter bezel.
    a. Press the release pads at the bottom corners of the bezel.
    b. Swing the bezel up and off the BladeCenter.
2. Push the tabs on the left and right sides of the tray to the left and right respectively; then, pull the media tray out of the BladeCenter.

Reverse these instructions to reinstall the media tray.

Removing the media-tray cover

Complete the following steps to remove the media tray cover.

Note:
- Read "Installation guidelines" on page 31.
- Read the safety notices at "Safety information" on page 85.
- Read "Handling electrostatic discharge-sensitive devices" on page 88.
1. Lift at the points indicated in the illustration to lift the rear of the tray cover off the fasteners.
2. Slide the cover toward the rear of the tray until the front tabs are clear of the slots in the tray; then, lift the cover off the tray.

    Note: The diskette drive shown in the following illustration is not present in all BladeCenter unit models.

Lift points   Tabs

Pressure points

Slots
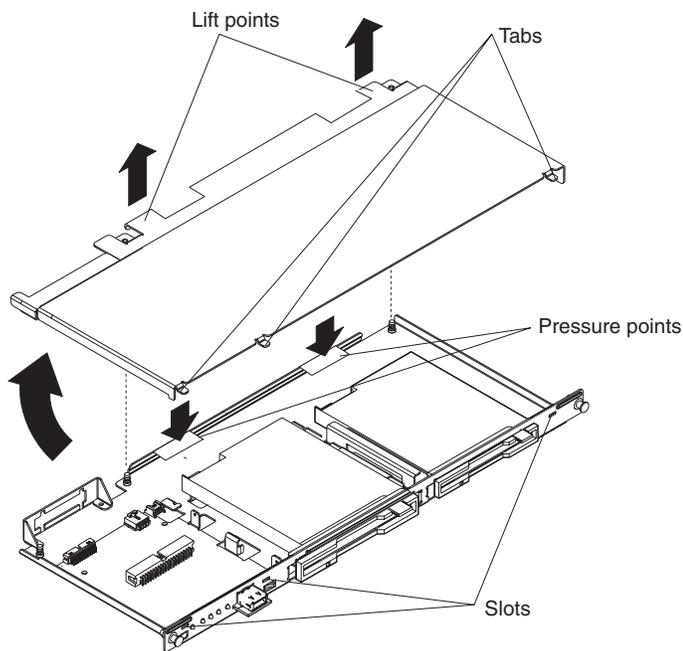
Reverse these instructions to reinstall the media tray cover. Press the rear of the cover down onto the two fasteners to secure the cover in place.

Optical or diskette drive

Note: The diskette drive is not present in all BladeCenter unit models.

The optical drive and the diskette drive have the same securing mechanism, a wire-retention spring. On the optical drive, the wire spring is on the left; on the diskette drive, the wire spring is on the right.

Complete the following steps to replace the optical drive or the diskette drive.

Note:
- Read "Installation guidelines" on page 31.
- Read the safety notices at "Safety information" on page 85.
- Read "Handling electrostatic discharge-sensitive devices" on page 88.
 1. Remove the media tray (see "Media tray" on page 48).
 2. Remove the media-tray cover (see "Removing the media-tray cover" on page 48).

CD-ROM drive   Diskette drive

Drive guide   Drive guide
Wire spring   Wire spring
Retention hook   Retention hook
Drive guide   Drive guide
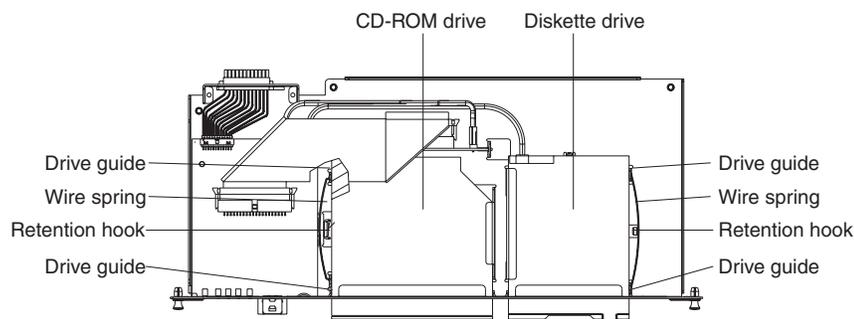
3. If you are removing the diskette drive, disconnect the cable from the rear of the drive.

4. Slip the wire spring out from under the retention hook, and pull it away from the drive. Set the wire spring aside.

5. Slide the drive out of the front of the media tray, and set it aside.

6. Set any jumpers or switches on the replacement drive to match the drive you just removed.

7. Slide the replacement drive all the way into the bay on the media tray.
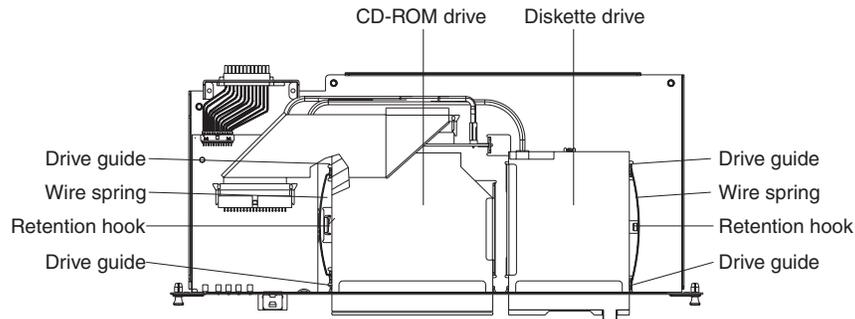
8. Align the holes in the side of the drive with the hole in each drive guide.

9. Push each end of the wire spring through the hole in the drive guide and into the hole in the drive; then, push the middle of the wire spring under the retention hook.

10. Try to move the drive, to make sure the wire spring is holding it in place. If the drive slides forward, remove the wire spring and repeat steps 7 through 10.

11. If you replaced the diskette drive, reconnect the cable at the rear of the drive.

Installing SuSE to a SCSI drive

The SuSE Linux operating system sees the diskette drive as a SCSI device. When you are trying to install SuSE to a SCSI hard disk drive in a blade server SCSI storage expansion unit and the blade server is the current owner of the media tray (optical drive, diskette drive, and USB port), the SCSI identification of the diskette drive can cause problems. SuSE might not install properly to the SCSI hard disk drive.

For a remote (network) installation, make sure the blade server is not the current owner of the media tray before you attempt to install the SuSE Linux operating system on the blade server.

Customer interface card and USB connector

Complete the following steps to remove the customer interface card from the media tray.

Note:
- Read "Installation guidelines" on page 31.
- Read the safety notices at "Safety information" on page 85.
- Read "Handling electrostatic discharge-sensitive devices" on page 88.
1. Remove the media tray (see "Media tray" on page 48).
2. Remove the media tray cover (see "Removing the media-tray cover" on page 48).

Fasteners

Customer
interface card
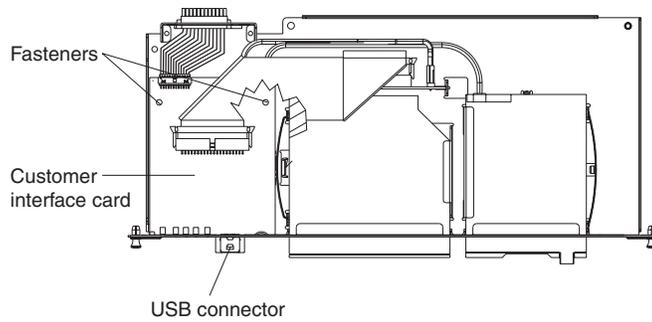
USB connector

3. Disconnect the cables from the customer interface card.

4. Lift the two rear corners of the customer interface card to release it from the fasteners.

5. Slide the customer interface card toward the rear of the media tray until the USB connector is free of the opening; then, lift the board off the media tray.

6. To replace the customer interface card, reverse the previous steps. Press down on the rear of the board to secure it to the fasteners.

CD interposer board

Note: The CD interposer board is only present in BladeCenter unit models that have a media tray with a diskette drive.

Complete the following steps to replace the CD interposer board.

Note:

-   Read "Installation guidelines" on page 31.
-   Read the safety notices at "Safety information" on page 85.
-   Read "Handling electrostatic discharge-sensitive devices" on page 88.
1. Remove the media tray (see "Media tray" on page 48).
2. Remove the media-tray cover (see "Removing the media-tray cover" on page 48).
3. Remove the CD-ROM drive (see "Optical or diskette drive" on page 49.)

Interposer board

Retaining brackets
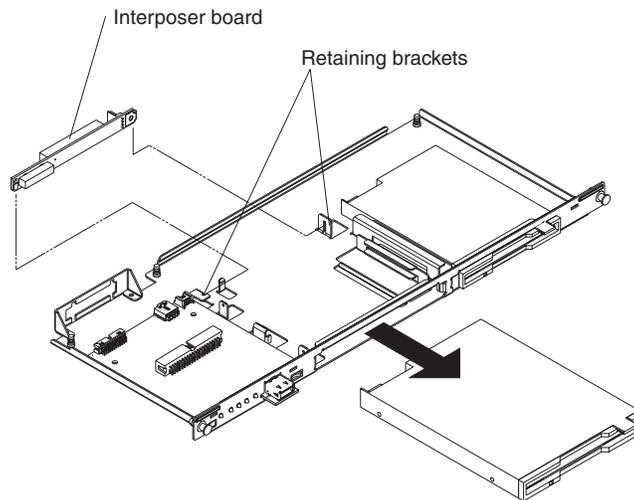
4. Remove the cables from the interposer board.

5. Lift the end of the interposer board that is closer to the customer interface card, and slide it toward the customer interface card until the other end of the interposer board is free of the retaining bracket.

To install the replacement CD interposer board, reverse the previous steps, making sure to insert the tab on one end of the interposer board into the guide that is near the diskette drive.

Switch, power, and cooling (SPC) chassis

Complete the following steps to remove the sub-chassis that contains the switch (I/O), power, and cooling (SPC) modules.

Note:
- Read "Installation guidelines" on page 31.
- Read the safety notices at "Safety information" on page 85.
- Read "Handling electrostatic discharge-sensitive devices" on page 88.
1. Shut down the operating systems, and turn off any blades in the BladeCenter.
2. Turn off the BladeCenter and any attached devices (see "Shutting down the BladeCenter unit" on page 12).
3. Disconnect the cables from the modules in the rear of the BladeCenter.
4. Remove the modules from the rear of the BladeCenter.
5. Disengage all the blades from the BladeCenter midplane.
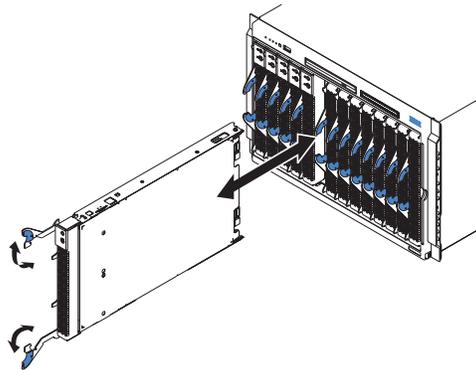
   a. Open the two release levers on each blade as far as they will go.
   b. Pull each blade out about 2.54 cm (1 inch).

   Important: If you completely remove any blades, each blade must be reinstalled in the same bay from which it was removed.

   Note: It is not necessary to release or remove any filler blades.
6. On the rear of the BladeCenter, release the shipping brackets.

Shipping
bracket

SPC chassis
thumbscrews

SPC chassis
thumbscrews

Release
latch
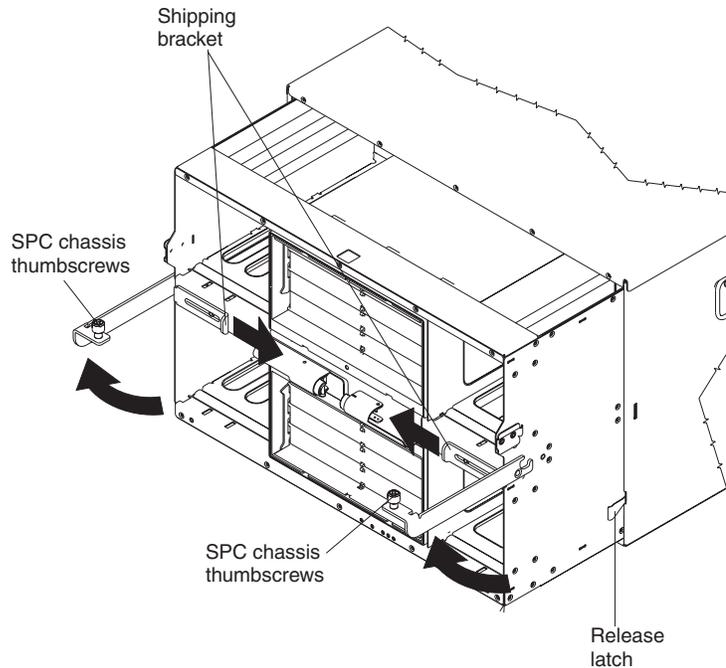
   a. To disengage the shipping brackets, slide the shipping brackets towards the blowers.

7. Unscrew the captive thumbscrews at the bottom corners of the chassis, and pull them until the SPC chassis moves out about 1.27 cm (0.5 inches).

8. Pull the SPC chassis out until it stops (about half-way out).

9. While supporting the SPC chassis with your hands, press the release levers on the sides, and pull the SPC chassis out of the BladeCenter unit. Place the SPC chassis on a strong, flat surface.

To reinstall the SPC chassis, reverse the previous steps.

Media-cable tray

Note: The media cable is only present in BladeCenter unit models that have a media tray with a diskette drive.

The media-cable tray is between the media tray and the SPC chassis.

Complete the following steps to remove the media cable tray.

Note:
- Read "Installation guidelines" on page 31.
- Read the safety notices at "Safety information" on page 85.
- Read "Handling electrostatic discharge-sensitive devices" on page 88.
1. Remove the BladeCenter bezel.
   a. Press the release pads at the bottom corners of the bezel.
   b. Swing the bezel up and off the BladeCenter.
2. Push the tabs on the left and right sides of the tray to the left and right respectively; then, pull the media tray out of the BladeCenter.

Fasteners
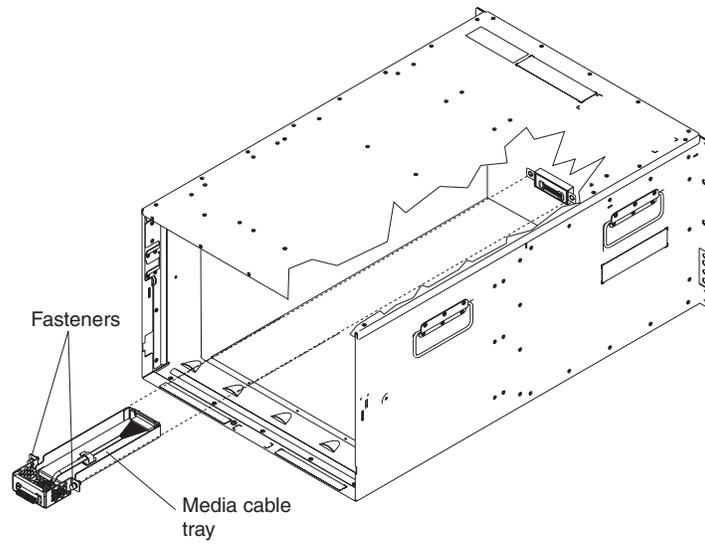
Media cable tray

3. Remove the media tray cable.

To replace or reinstall the media cable tray, reverse the previous steps.

Midplane

Complete the following steps to replace the midplane.

Note:
- Read "Installation guidelines" on page 31.
- Read the safety notices at "Safety information" on page 85.
- Read "Handling electrostatic discharge-sensitive devices" on page 88.

1. Shut down the BladeCenter, and remove the SPC chassis (see "Switch, power, and cooling (SPC) chassis" on page 52).
2. Unplug the cable at the bottom of the midplane.
3. Unscrew the 12 fasteners that hold the midplane to the SPC chassis.
4. Pull the midplane away from the SPC chassis.
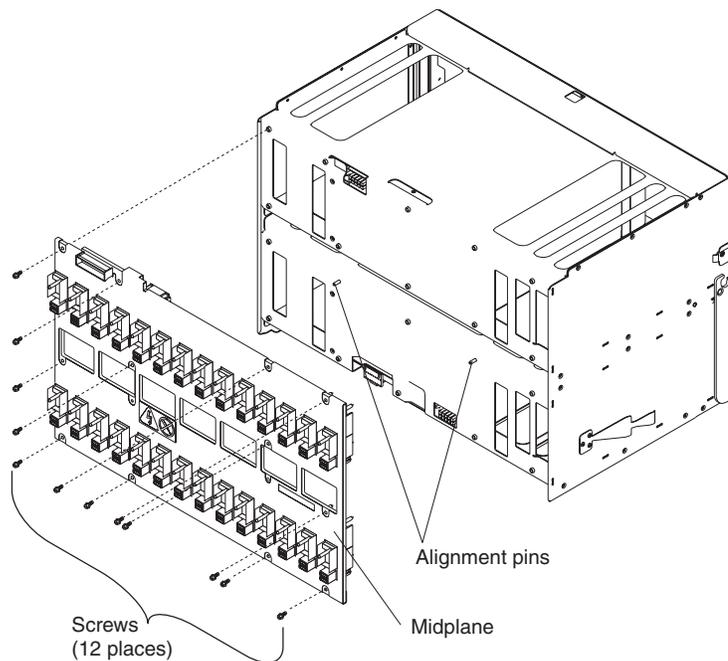
5. Install the replacement midplane by reversing the previous steps.

System LED panel

There are two system LED panels on the BladeCenter: one is on the front of the BladeCenter; the other is on the rear.

Front system LED panel

The front system LED panel is on the customer interface card in the media tray. To replace the front system LED panel, replace the customer interface card. See "Customer interface card and USB connector" on page 50 for instructions.

Rear system-LED panel

The rear system-LED panel is on the SPC chassis. Complete the following steps to replace the rear system-LED panel.

Note:

- Read "Installation guidelines" on page 31.
- Read the safety notices at "Safety information" on page 85.
- Read "Handling electrostatic discharge-sensitive devices" on page 88.

1. Shut down the BladeCenter, and remove the SPC chassis (see "Switch, power, and cooling (SPC) chassis" on page 52).
2. Turn the SPC chassis upside-down.
3. Unplug the cable at the bottom of the midplane.
4. Unscrew the two fasteners on the LED panel.
5. Remove the LED panel from the SPC chassis.
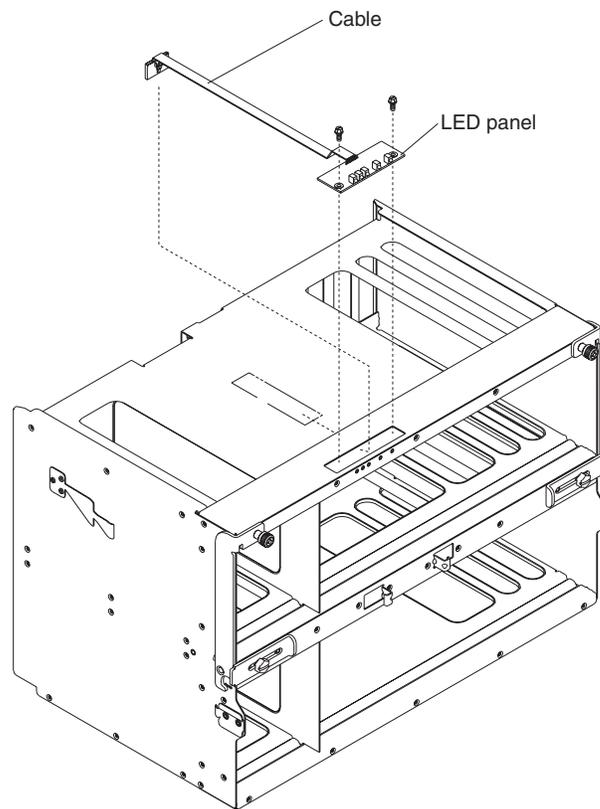
Note: You might need to push the LED panel cable toward the panel to leverage the panel out of the chassis opening.

6. Install the replacement rear system LED panel by reversing the previous steps.

Note: The cable of the new rear system LED panel must be adhered to the SPC chassis. Once the panel is positioned on the SPC chassis, the release liner that covers the adhesive on the cable must be removed for the cable to adhere to that chassis. The cable can then be plugged to the midplane.