

53-1001809-01  
January 31, 2010



# Blade and Filler Panel

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## Replacement Procedure

**Supporting PowerConnect B-DCX4-S Backbone, DCX Backbone, and  
PowerConnect B-48000 Director**

53-1001809-01



## Notes, Cautions, and Warnings

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### NOTE

A NOTE indicates important information that helps you make better use of your computer.

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### CAUTION

See the safety and regulatory information that shipped with your system. For additional regulatory information, see the Regulatory Compliance Homepage on [www.dell.com](http://www.dell.com) at the following location: [www.dell.com/regulatory\\_compliance](http://www.dell.com/regulatory_compliance).

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### CAUTION

A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.

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### DANGER

A DANGER indicates a potential for property damage, personal injury, or death.

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Regulatory Model Codes: Brocade DCX-4S, Brocade DCX

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## Introduction

This document provides instructions for replacing blades and filler panels in the PowerConnect B-DCX4-S Backbone, the PowerConnect B-DCX Backbone, and the PowerConnect B-48000 Director.

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### NOTE

The FC8-16, FC8-32, FC-48, FC10-6, FR4-18i, and FA4-18 blades are compatible with the PowerConnect B-DCX, the PowerConnect B-DCX-4S, and the PowerConnect B-48000. The FS8-18 encryption blade and the FX8-24 and FCOE10-24 application blades are compatible only with the PowerConnect B-DCX and the PowerConnect B-DCX-4S.

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### NOTE

For the PowerConnect B-DCX4-S, port, application, and encryption blades can be installed in slots 1, 2, 7, and 8. For the PowerConnect B-DCX, port, application, and encryption blades can be installed in slots 1 through 4 and 9 through 12. For the PowerConnect B-48000, port and application blades can be installed in slots 1 through 4 and 7 through 10.

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For supported mixed blade configurations, refer to the *Brocade Director Migration Guide*.

## General precautions

When installing or servicing the PowerConnect B-DCX4-S, PowerConnect B-DCX, and PowerConnect B-48000, follow these practices:

- Use correct tools.
- Use correct replacement parts.
- Keep all installation and service-related paperwork up to date, complete, and accurate.

## ESD precautions

The PowerConnect B-DCX-4S, the PowerConnect B-DCX, and the PowerConnect B-48000 contain electrostatic discharge (ESD) sensitive field-replaceable units (FRUs). When working with any FRU, use correct ESD procedures.

- Wear a wrist grounding strap connected to chassis ground or a bench ground.
- Store ESD-sensitive components in antistatic packaging.

## Attention notices

An attention notice indicates the possibility of damage to a program, device, or system, or to data. This is a sample of an attention notice:

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### ATTENTION

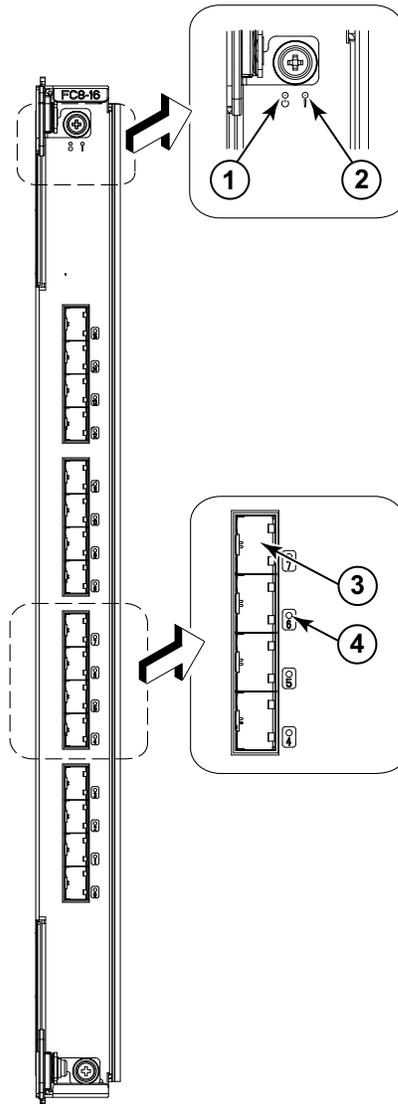
Do not bend a fiber cable to a radius less than 5 cm (2 in.); you can damage the cable. Tie wraps are not recommended for optical cables because they can be easily overtightened, causing damage to the cable.

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## Port and application blades

Figure 1 through Figure 11 illustrate the port, application, and encryption blades, and their ports and LEDs. Blades in these illustrations are shown in their vertical orientation as they would be installed in the PowerConnect B-DCX and the PowerConnect B-48000. In the PowerConnect B-DCX-4S the blades are horizontally oriented, rotated 90° counter-clockwise from the vertical.

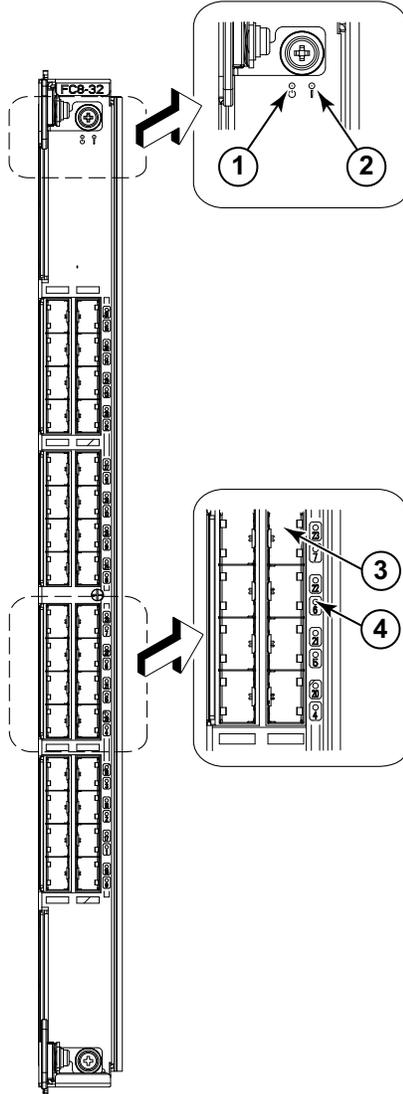
- [Figure 1](#) illustrates the FC8-16 port blade.
- [Figure 2](#) illustrates the FC8-32 port blade.
- [Figure 3](#) illustrates the FC8-48 port blade.
- [Figure 4](#) illustrates the FC4-16 port blade.
- [Figure 5](#) illustrates the FC4-32 port blade.
- [Figure 6](#) illustrates the FC4-48 port blade.
- [Figure 7](#) illustrates the FC10-6 port blade.
- [Figure 8](#) illustrates the FC4-16IP application blade.
- [Figure 9](#) illustrates the FR4-18i application blade.
- [Figure 10](#) illustrates the FA4-18 application blade.
- [Figure 11](#) illustrates the FS8-18 encryption blade.
- [Figure 12](#) illustrates the FX8-24 extension blade.
- [Figure 13](#) illustrates the FCOE10-24 FCoE blade.



- 1 Power LED
- 2 Status LED

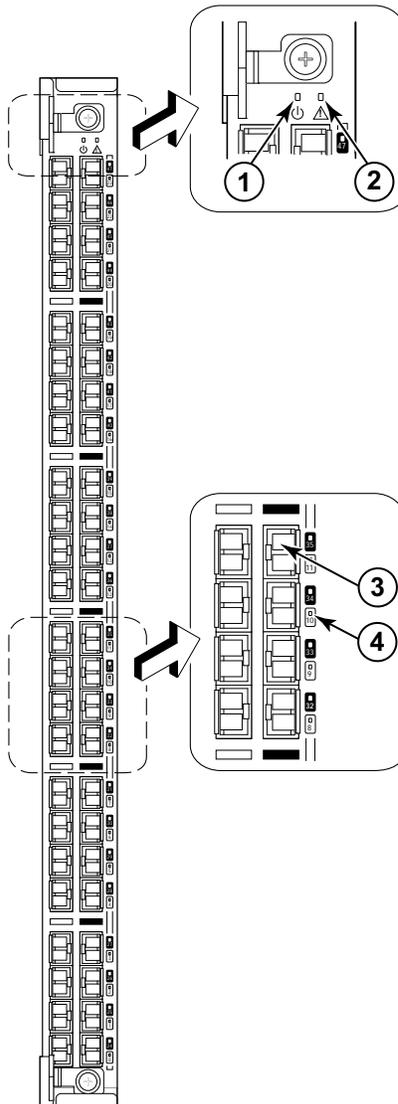
- 3 Fibre Channel port
- 4 Port Status LED

**FIGURE 1** FC8-16 Port blade



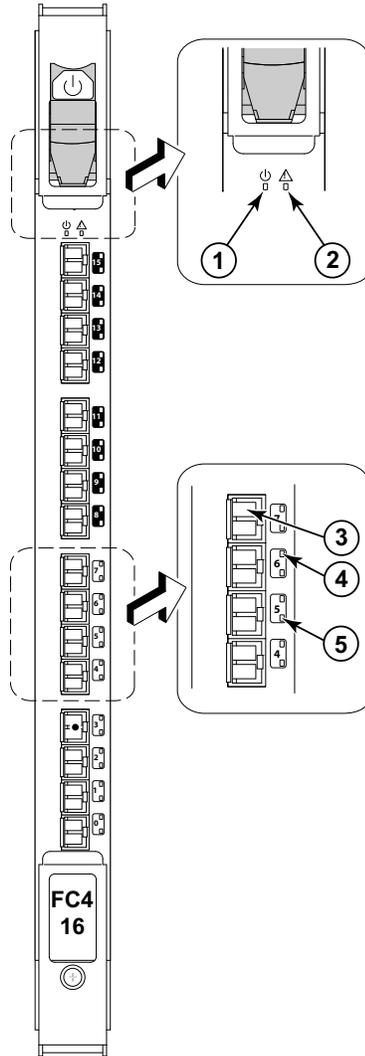
- |   |            |   |                    |
|---|------------|---|--------------------|
| 1 | Power LED  | 3 | Fibre Channel port |
| 2 | Status LED | 4 | Port Status LED    |

**FIGURE 2** FC8-32 Port blade



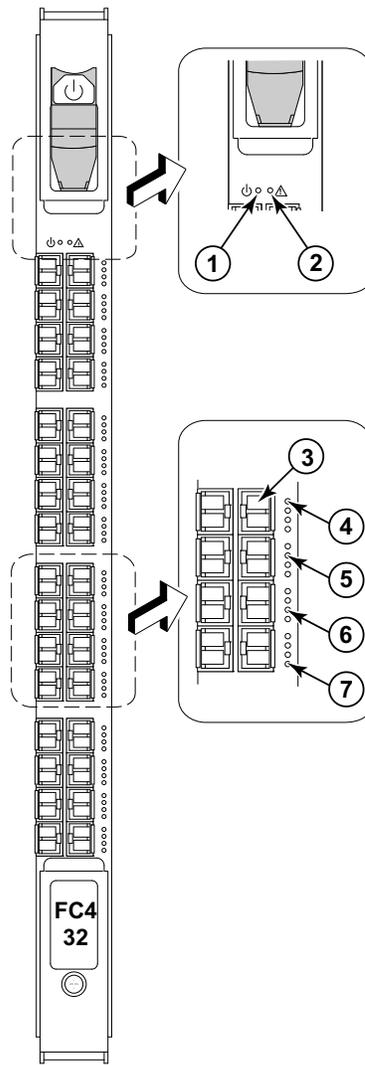
- 1 Power LED
- 2 Status LED
- 3 Fibre Channel port
- 4 Port Status LED

**FIGURE 3** FC8-48 Port blade



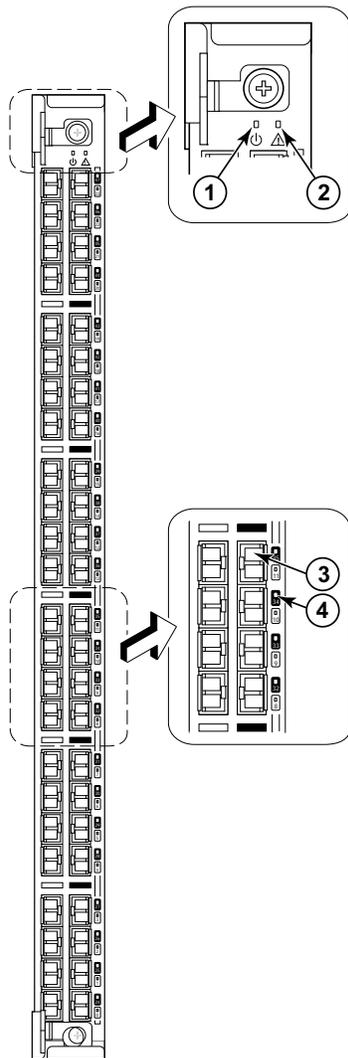
- 1 Power LED
- 2 Status LED
- 3 Fibre Channel port
- 4 Port Speed LED
- 5 Port Status LED

**FIGURE 4** FC4-16 Port blade



- |   |                            |   |                              |
|---|----------------------------|---|------------------------------|
| 1 | Power LED                  | 5 | Port Status LED (left port)  |
| 2 | Status LED                 | 6 | Port Speed LED (right port)  |
| 3 | Fibre Channel port         | 7 | Port Status LED (right port) |
| 4 | Port Speed LED (left port) |   |                              |

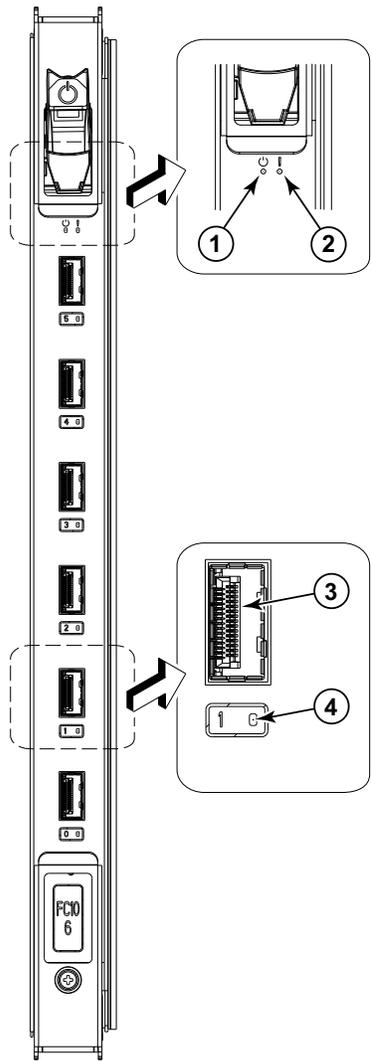
**FIGURE 5** FC4-32 Port blade



- 1 Power LED
- 2 Status LED

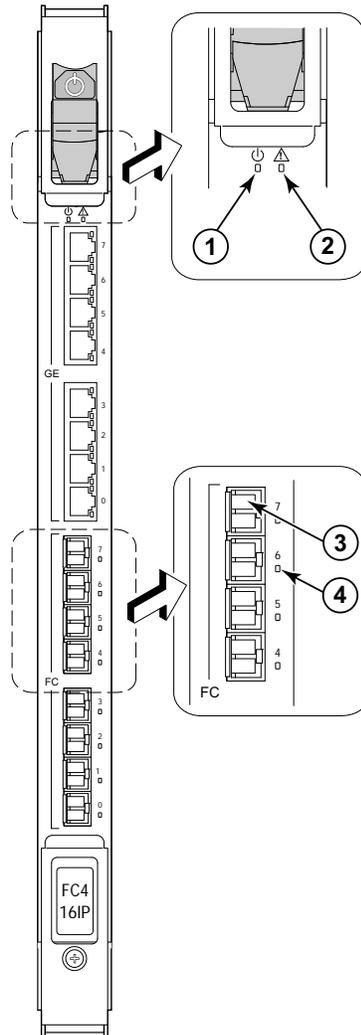
- 3 Fibre Channel port
- 4 Port Status LED

**FIGURE 6** FC4-48 Port blade



- |   |            |   |                    |
|---|------------|---|--------------------|
| 1 | Power LED  | 3 | Fibre Channel port |
| 2 | Status LED | 4 | Port Status LED    |

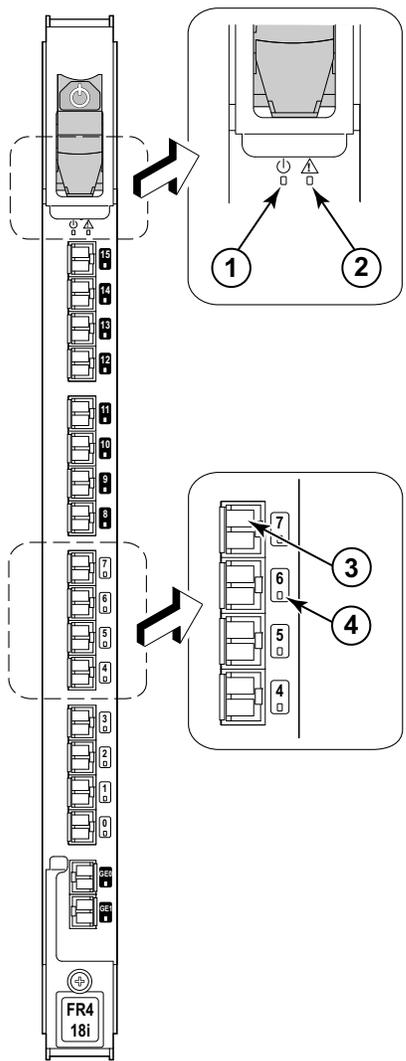
**FIGURE 7** FC10-6 Port blade



- 1 Power LED
- 2 Status LED

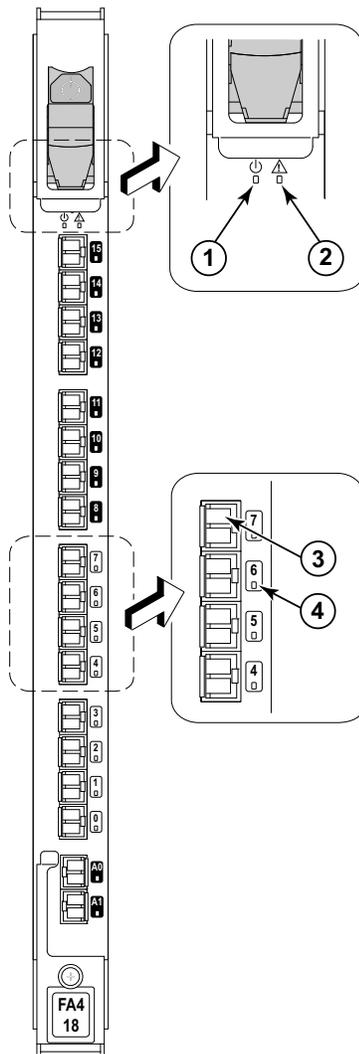
- 3 Fibre Channel port
- 4 Port Status LED

**FIGURE 8** FC4-16IP Application blade



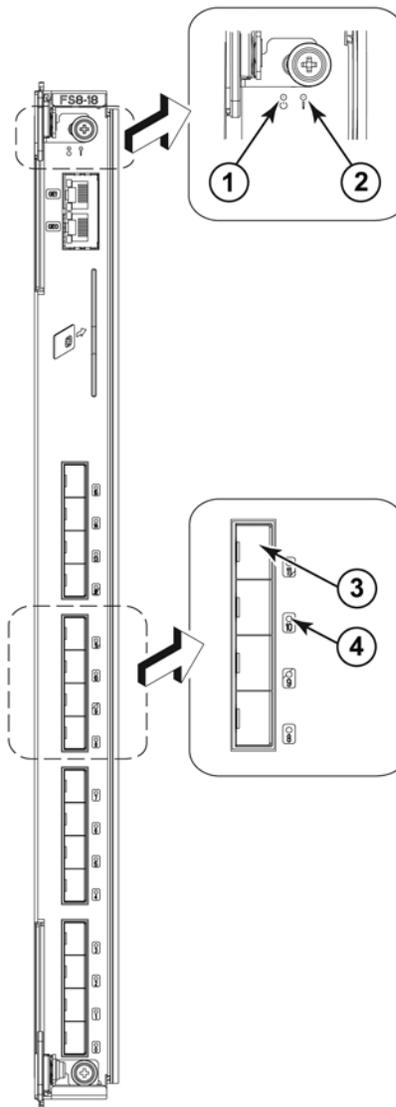
- |   |            |   |                    |
|---|------------|---|--------------------|
| 1 | Power LED  | 3 | Fibre Channel port |
| 2 | Status LED | 4 | Port Status LED    |

**FIGURE 9** FR4-18i Application blade



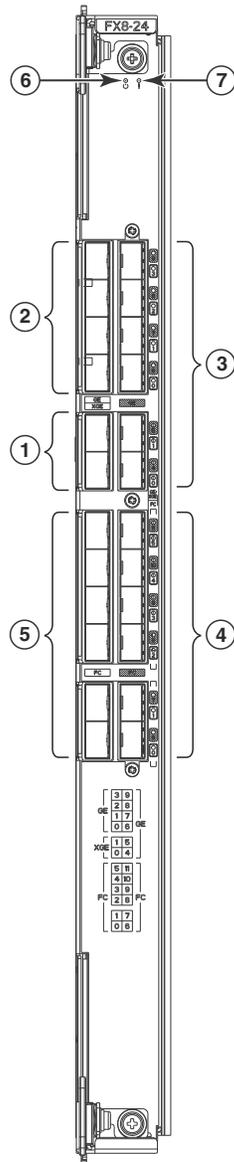
- |   |            |   |                    |
|---|------------|---|--------------------|
| 1 | Power LED  | 3 | Fibre Channel port |
| 2 | Status LED | 4 | Port Status LED    |

**FIGURE 10** FA4-18 Application blade



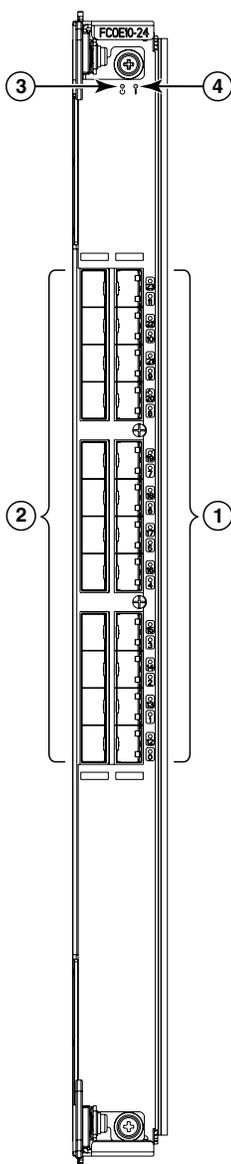
- |   |            |   |                    |
|---|------------|---|--------------------|
| 1 | Power LED  | 3 | Fibre Channel port |
| 2 | Status LED | 4 | Port Status LED    |

**FIGURE 11** FS8-18 Application blade



- |     |              |   |                  |
|-----|--------------|---|------------------|
| 1   | 10 GbE ports | 6 | Blade Power LED  |
| 2-3 | 1 GbE ports  | 7 | Blade Status LED |
| 4-5 | FC ports     |   |                  |

**FIGURE 12** FX8-24 extension blade



- |   |                         |   |            |
|---|-------------------------|---|------------|
| 1 | 10 GbE FCoE ports 12-23 | 3 | Power LED  |
| 2 | 10 GbE FCoE ports 0-11  | 4 | Status LED |

**FIGURE 13** FCOE10-24 FCoE blade

## Removal and replacement of a blade

This section describes how to remove and replace port, application, or encryption blades.

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### ATTENTION

A filler panel should be removed only when being replaced with a port, application, or encryption blade or a new filler panel. Any slot that is not occupied by a blade should be occupied by a filler panel to ensure correct cooling of the chassis and protection from dust.

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For the PowerConnect B-DCX-4S, slots are numbered from 1 through 8, from bottom to top when facing the port side. Port, application, and encryption blades can be installed in slots 1-2 and 7-8.

For the PowerConnect B-DCX and PowerConnect B-48000, slots are numbered from left to right when facing the port side of the chassis. Port blades can be installed in slots 1 through 4 and 9 through 12 in the PowerConnect B-DCX and in slots 1 through 4 and 7 through 10 in the PowerConnect B-48000.

## Time and items required

The replacement procedure for each blade or filler panel takes less than 10 minutes. The following items are required for the blade and filler panel replacement procedure:

- ESD (electrostatic discharge) grounding strap
- Workstation computer
- Replacement blade or filler panel
- Phillips screwdriver
- Small form-factor pluggable (SFP) or extended form-factor pluggable (XFP, FC10-6 port blade only) transceivers (as needed)
- Optical cables (as needed)

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### NOTE

For information about the SFP and XFP transceivers that are qualified for the PowerConnect B-DCX-4S, the PowerConnect B-DCX, and the PowerConnect B-48000, go to [http://www.brocade.com/products/interop\\_and\\_compatibility.jsp](http://www.brocade.com/products/interop_and_compatibility.jsp).

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## Blades with ejectors or ejectors and slider switches

These blades have ejectors only:

- FC8-16 port blade ([Figure 1](#))
- FC8-32 port blade ([Figure 2](#))
- FC8-48 port blade ([Figure 3](#))
- FC4-48 port blade ([Figure 6](#))
- FS8-18 encryption blade ([Figure 11](#))
- FX8-24 extension blade ([Figure 12](#))
- FCOE10-24 FCoE blade ([Figure 13](#))

[Figure 14](#) illustrates how to remove or replace a sample blade with ejectors.

[Figure 15](#) illustrates the blade orientation in a PowerConnect B-DCX-4S chassis.

These blades have ejectors and slider switches:

- FC4-16 port blade ([Figure 4](#))
- FC4-32 port blade ([Figure 5](#))
- FC10-6 port blade ([Figure 7](#))
- FC4-16IP application blade ([Figure 8](#))
- FR4-18i application blade ([Figure 9](#))
- FA4-18 application blade ([Figure 10](#)).

Figure 16 illustrates how to remove or replace a sample blade with ejectors and slider switches.

## Removing a blade

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### ATTENTION

The instructions below refer to the top and bottom of each blade in the vertical orientation as used in the PowerConnect B-DCX and the PowerConnect B-48000. For the PowerConnect B-DCX-4S, because the blades are horizontally oriented, top should be read as left and bottom should be read as right.

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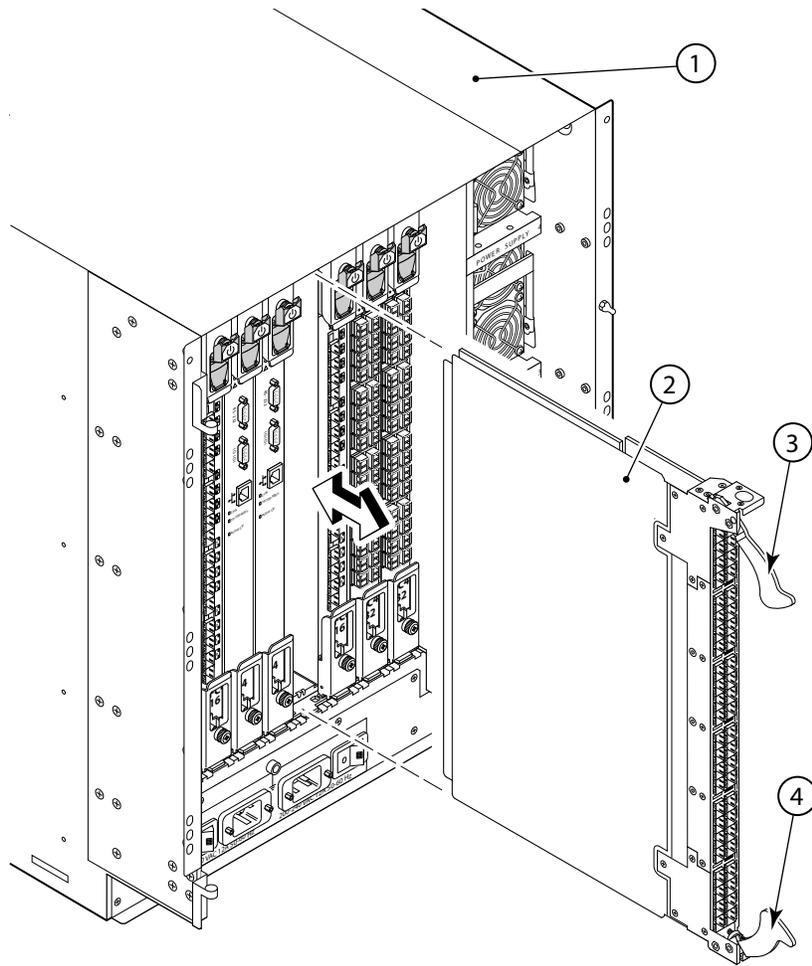
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### ATTENTION

Follow ESD precautions (“[ESD precautions](#)”).

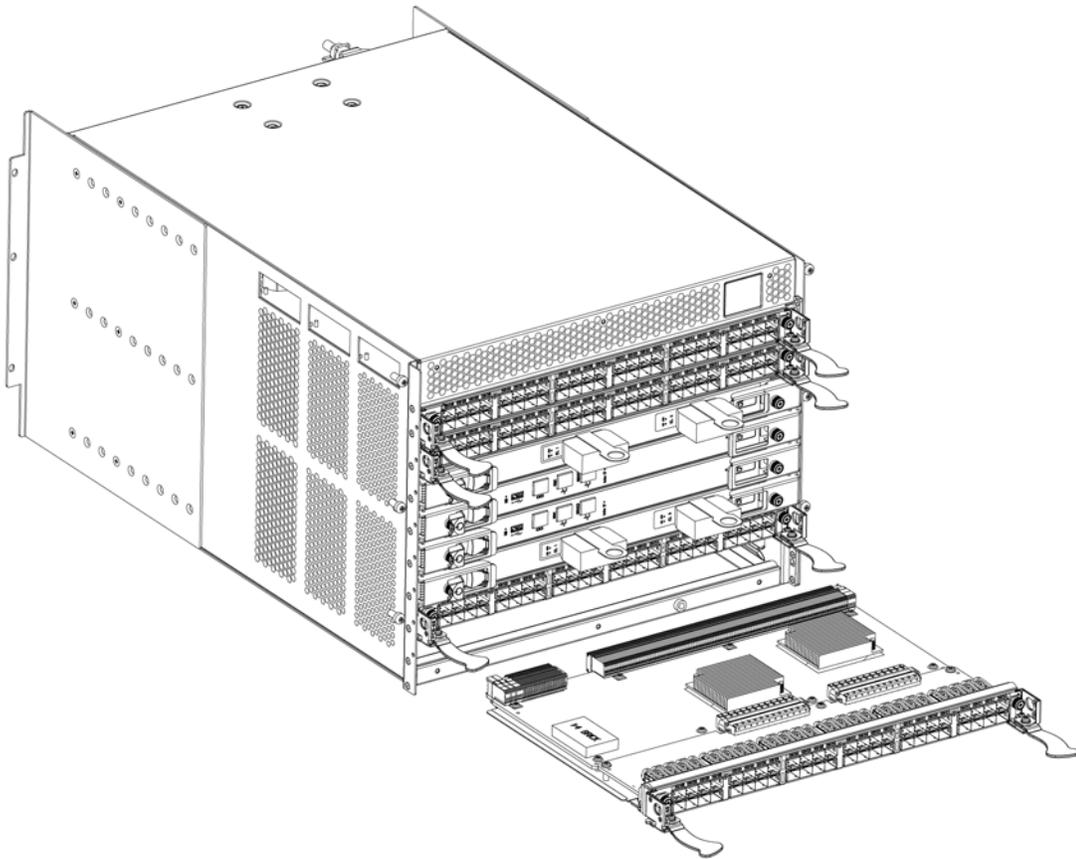
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1. Check the blade and port LEDs to identify possible problems with the blade ([Figure 1](#) through [Figure 13](#)). A failed blade can be identified by inspecting the LEDs on the front panel of each blade. The WWN bezel on the nonport side of the PowerConnect B-DCX and the PowerConnect B-48000 also displays a power and status LED for each blade. For the PowerConnect B-DCX-4S the power and status LEDs are on the front panel of each blade.
2. Establish a Telnet or console session to determine a failure and verify operation after replacement. Use the **switchShow** command to view the status of blades. Refer to the *Fabric OS Administrator’s Guide* for information about how to check the status of hardware components using the command line interface (CLI).
3. Check for adequate cable slack. Ensure there is plenty of cable slack to remove a blade without optical, power, or Ethernet cable obstruction.
4. Ensure that you have the correct spare part (blade or filler panel).  
  
Ensure that the part number on the unit being replaced matches the replacement part number. The **chassisShow** command displays information about the blades, including part numbers (xx-xxxxxx-xx), serial numbers, and additional status.
5. Ensure that traffic is not flowing through the blade (port speed and port status LEDs should be off).
6. Note cable order. Identify each cable by its physical port.
7. Disconnect all cables and SFP or XFP transceivers from the blade.
8. For blades with ejectors only, unscrew the two thumb screws from the top and bottom ejectors on the blade using the Phillips screwdriver. Unscrew the top thumb screw until it pops out. This initiates a hot-swap request. Adjust the ejectors to the open position ([Figure 14](#)).
9. For blades with ejectors and slider switches, turn the blade off by sliding the slider switch in the top ejector down, to the off position ([Figure 16](#)). This initiates a hot-swap request.
10. Wait for the power LED to turn off in response to the hot-swap request before removing the blade.
11. For blades with ejectors only, open the ejectors. Pull the blade out of the chassis using the ejectors.  
  
For blades with ejectors and slider switches, unscrew the two thumb screws from the top and bottom ejectors on the blade using the Phillips screwdriver. Lever both ejectors open simultaneously to approximately 45 degrees and pull the blade out of the chassis.
12. If the blade is not being replaced by another blade, install a filler panel (refer to “[Removal and replacement of a filler panel](#)” for instructions).

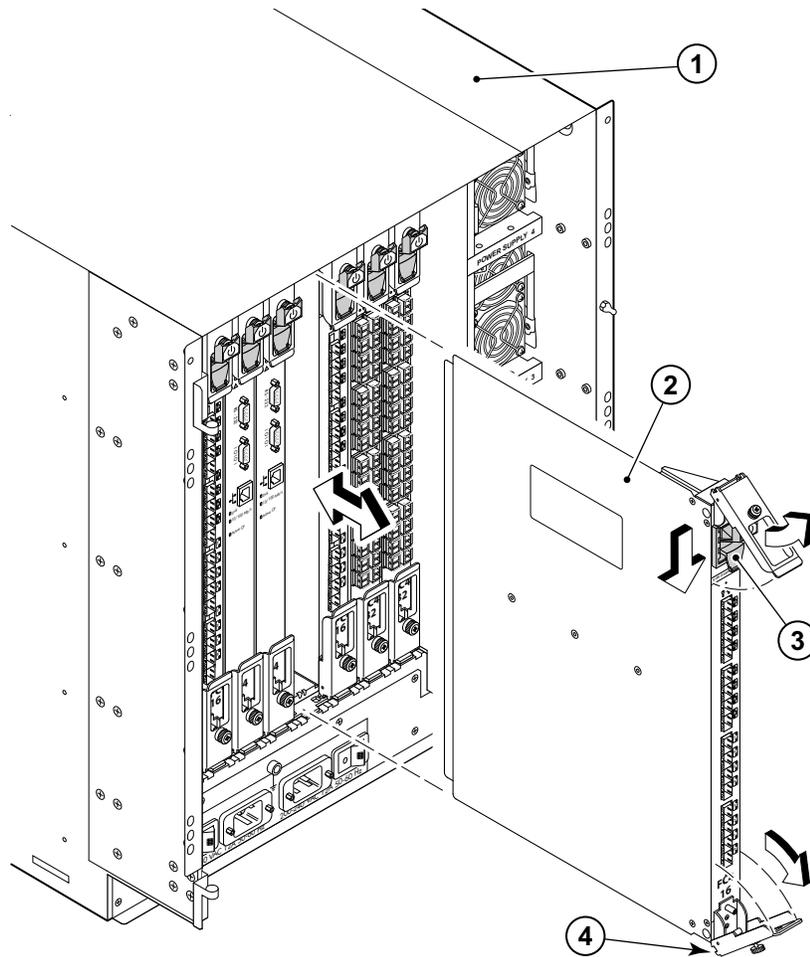


- 1 Chassis
- 2 Blade (an FC4-48 blade is shown)
- 3 Upper ejector
- 4 Lower ejector

**FIGURE 14** Removing and replacing a blade with ejectors only (FC4-48 shown) in a PowerConnect B-48000 (PowerConnect B-DCX similar)



**FIGURE 15** Port, application, or encryption blade (FC8-48 port blade shown) in a PowerConnect B-DCX-4S



- 1 Chassis
- 2 Blade (an FC4-16 blade is shown)
- 3 On/Off Slider switch (in the Off position)
- 4 Ejector

**FIGURE 16** Removing and replacing a blade with ejectors and slider switches (FC4-16 shown) in a PowerConnect B-48000 (PowerConnect B-DCX similar)

## Replacing a blade

### ATTENTION

The instructions below refer to the top and bottom of each blade in the vertical orientation as used in the PowerConnect B-DCX and the PowerConnect B-48000. For the PowerConnect B-DCX-4S, because the blades are horizontally oriented, top should be read as left and bottom should be read as right.

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**ATTENTION**

Follow ESD precautions (“ESD precautions”).

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1. Ensure that all packing material and safety appliances have been removed from the blade.
2. Orient the blade so that the ports are at the front of the chassis and the flat side of the blade is on the left.
3. For blades with ejectors only, adjust the ejectors to the open position, align the flat side of the blade inside the upper and lower rail guides in the slot, and slide the blade into the slot until it is firmly seated (Figure 14).

For blades with ejectors and slider switches, open the ejectors to approximately 45 degrees, align the flat side of the blade inside the upper and lower rail guides in the slot, and slide the blade into the slot, with *slight* pressure to the left, until it is firmly seated (Figure 16).

4. For blades with ejectors only, adjust the ejectors to the closed position by pulling them away from the center of the blade.

For blades with ejectors and slider switches, close the ejectors by pushing the handles toward the center of the blade until the ejectors lock. The levering action of the handles seats the blade in the slot.

5. For blades with ejectors, tighten the upper and lower thumb screws using the Phillips screwdriver.

For blades with ejectors and sliders switches, tighten the thumb screw inside each handle using the Phillips screwdriver.

6. For blades with ejectors and slider switches, turn the blade on by sliding the slider switch in the top ejector up, covering the thumb screw.
7. Verify that the power LED on the blade is displaying a steady green light. If it does not turn on, ensure that the blade is firmly seated.
8. Install the SFP or XFP (FC10-6 only) transceivers and cables in the blade.
9. Group and route the cables.

## Removal and replacement of a filler panel

This section describes how to remove and replace the blade filler panel.

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**ATTENTION**

The instructions below refer to the top and bottom of a filler panel in the vertical orientation as used in the PowerConnect B-DCX and the PowerConnect B-48000. For the PowerConnect B-DCX-4S, because the panels are horizontally oriented, top should be read as left and bottom should be read as right.

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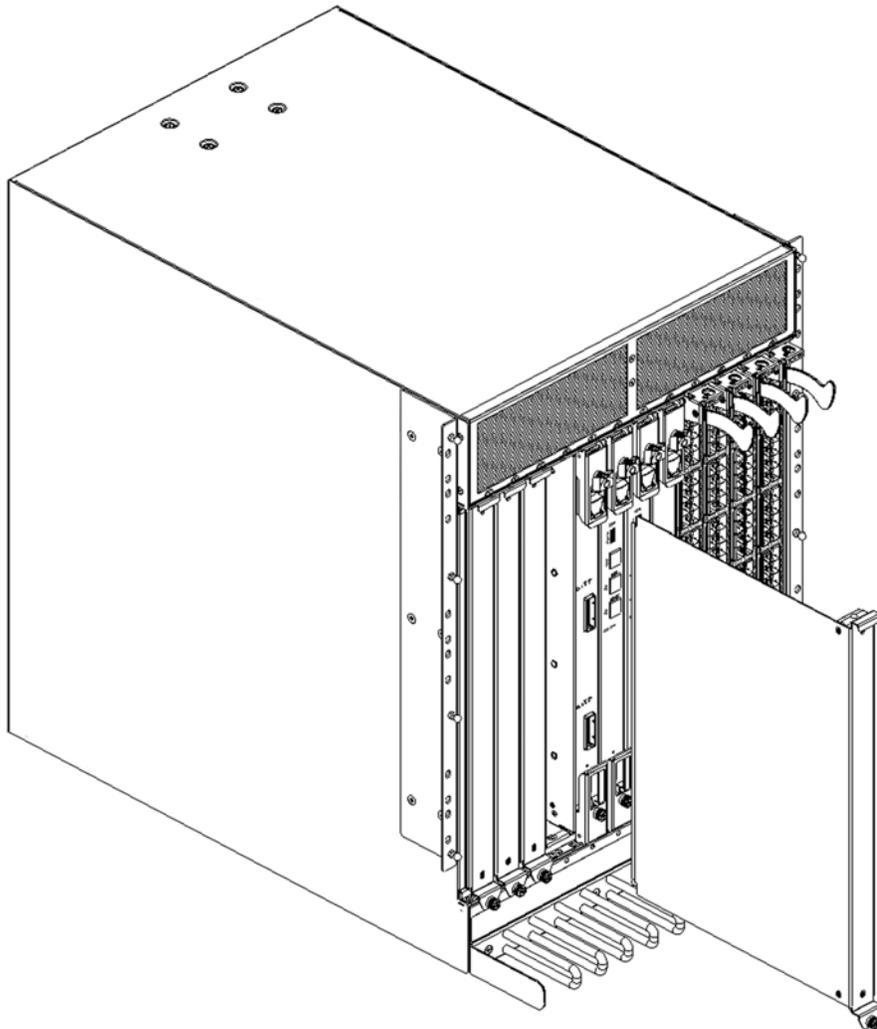
**ATTENTION**

A filler panel should be removed only when being replaced with a blade or a new filler panel. Any slot that is not occupied by a blade should be occupied by a filler panel to ensure correct cooling of the chassis and protection from dust.

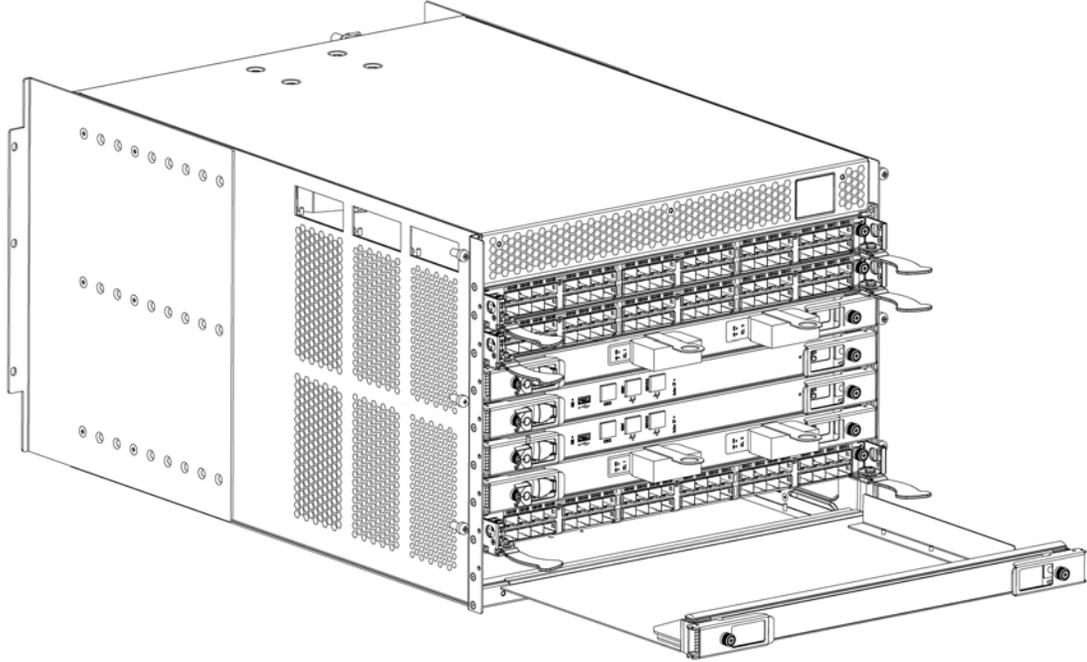
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### Removing a filler panel

1. Unscrew the thumb screw at the bottom of the panel using the Phillips screwdriver.
2. Pull the filler panel out of the chassis (Figure 17).



**FIGURE 17** Removing and replacing a blade filler panel for a PowerConnect B-DCX (PowerConnect B-48000 similar)



**FIGURE 18** Removing and replacing a blade filler panel for a PowerConnect B-DCX4-S

## Replacing a filler panel

1. Orient the filler panel ([Figure 17](#) or [Figure 18](#)).
2. Slide the filler panel into the slot until it is firmly seated.
3. Tighten the thumb screw at the bottom of the panel.

