ERICSSON

Dell PowerEdge R630 HW Installation

Cloud Execution Environment

INSTALLATION INSTRUCTIONS

4/1531-CSA 113 125/5 Uen A

Contents

1 Introduction

This document provides instructions on how to install the specified Cloud Execution Environment (CEE) HW.

1.1 Validity

This document is valid for Cloud Systems based on Dell PowerEdge R630 hardware.

1.2 Prerequisites

This section describes the prerequisites, which must be fulfilled before the installation work begins.

1.2.1 Safety

For safety practices used when working with power equipment, see Reference document: *Safety Rules for work with Power Equipment (2/1550-CNH 10803)*.

1.2.2 Documents

Before starting this procedure, ensure that the following documents have been read and understood:

- *Personal Health and Safety Information*
- *System Safety Information*

Before starting this procedure, ensure that the following information is available:

- Product name
- Platform
- HW list
- Work order
- Part list
- Site information about:
  - Floor layout including the position of the cabinet to be installed

- Floor plan specification
- Grounding Information
- Cabinet allocation specification
- Cabinet allocation drawing determining each units location in the cabinet with front, back, and side views
- Cabling Information providing information about all connections needed

1.2.3 Tools

The following tools are needed:

- Tools in accordance with cabinet supplier instructions
- TORX screwdriver, T25 × 75 - 200 mm
- TORX screwdriver, T30 × 75 - 200 mm
- Torque wrench 1/4 inch, 10 Nm with T25 × 75 mm and T30 × 75 mm TORX bits
- Tools for tie-wraps

1.2.4 Equipment

Lifting equipment with a lifting capacity of at least 50 kg.

1.2.5 Conditions

The following conditions must be fulfilled:

- The site and location is prepared and the installation space is marked.
- Keys and access are available.
- All work related to transport, installation, commissioning, and maintenance must be carried out by qualified personnel according to IEC 60364, European standard HD 384 and national work safety regulations.

1.2.6 Site Requirements

This section lists the space requirements for the site where the cabinet is to be installed.

Caution!

The equipment is heavy. Lifting the equipment without the aid of a lifting device can cause injury.

Note: The equipment is heavy so the floor must be reinforced if it is not able to carry the heavy equipment.

Cabinet Requirements

Standard 19-inch equipment rack, following IEC 60 297 or IEC 60 917. For example, Ericsson BYB504.

- Width: 48.3 cm (19 inches)
- Minimum Depth: 80.0 cm (31.4 inches)
- Height: at least space for 15 U

Floor Planning Requirements

To enable servicing and ensure adequate airflow, observe the following spatial requirements when deciding where to install a cabinet:

- Leave a minimum clearance of 120 cm (47.2 inches) in **front** of the cabinet.
- Leave a minimum clearance of 60 cm (26.6 inches) at the **back** of the cabinet.
- **Room height** from top of floor to ceiling: 310 cm (122 inches, or 10 feet and 2 inches).

Power Requirements

Power is best managed within the rack by the use of one or more rack-mounted PDUs. Depending on the configuration, it can be necessary to use multiple PDUs to connect all devices inside the rack. If possible, supply power from different sources and phases for a redundant power supply.

Table 1 AC 120-240 V, Three Phase

Supply	Fuse	Unit	Port	Power Cord and Connector Type
AC, Phase 1, Group A	10 A	Dell PowerEdge R630 1	Power Supply 1	IEC 320 C13

Supply	Fuse	Unit	Port	Power Cord and Connector Type
AC, Phase 2, Group A	10 A	Dell PowerEdge R630 2	Power Supply 1	IEC 320 C13
AC, Phase 3, Group A	10 A	Dell PowerEdge R630 3	Power Supply 1	IEC 320 C13
AC, Phase 1, Group A	10 A	Dell PowerEdge R630 4	Power Supply 1	IEC 320 C13
AC, Phase 2, Group A	10 A	Dell PowerEdge R630 5	Power Supply 1	IEC 320 C13
AC, Phase 3, Group A	10 A	Dell PowerEdge R630 6	Power Supply 1	IEC 320 C13
AC, Phase 1, Group A	10 A	Dell PowerEdge R630 7	Power Supply 1	IEC 320 C13
AC, Phase 2, Group A	10 A	Dell PowerEdge R630 8	Power Supply 1	IEC 320 C13
AC, Phase 1, Group B	10 A	Dell PowerEdge R630 1	Power Supply 2	IEC 320 C13
AC, Phase 2, Group B	10 A	Dell PowerEdge R630 2	Power Supply 2	IEC 320 C13
AC, Phase 3, Group B	10 A	Dell PowerEdge R630 3	Power Supply 2	IEC 320 C13
AC, Phase 1, Group B	10 A	Dell PowerEdge R630 4	Power Supply 2	IEC 320 C13
AC, Phase 2, Group B	10 A	Dell PowerEdge R630 5	Power Supply 2	IEC 320 C13
AC, Phase 3, Group B	10 A	Dell PowerEdge R630 6	Power Supply 2	IEC 320 C13
AC, Phase 1, Group B	10 A	Dell PowerEdge R630 7	Power Supply 2	IEC 320 C13
AC, Phase 2, Group B	10 A	Dell PowerEdge R630 8	Power Supply 2	IEC 320 C13
AC, Phase 3, Group A	10 A	Extreme X670V Switch 1	Power Supply 1	IEC 320 C13
AC, Phase 1, Group A	10 A	Extreme X670V Switch 2	Power Supply 1	IEC 320 C13
AC, Phase 3, Group B	10 A	Extreme X670V Switch 1	Power Supply 2	IEC 320 C13

Supply	Fuse	Unit	Port	Power Cord and Connector Type
AC, Phase 1, Group B	10 A	Extreme X670V Switch 2	Power Supply 2	IEC 320 C13
AC, Phase 2, Group A	10 A	Extreme X440 Switch 1	Power Supply 1	IEC 320 C13
AC, Phase 2, Group B	10 A	Extreme X440 Switch 2	Power Supply 1	IEC 320 C13
AC, Phase 3, Group A	10 A	Redundant Power supply for Extreme X440 Switches	Power Supply 1	IEC 320 C13

Note: Electrical installation must be carried out according to the relevant regulations with regards to cable cross sections, fuse, and protective earthing.

1.3 Concept for Installing HW

This section describes the concept and process of installing Dell HW.

The system is modular and built up by a number of servers called compute blades. This instruction describes how to assemble the HW for a CEE Region, which consists of eight Dell servers, and how to interconnect the units.

The flow of installation contains the following steps on a high level:

1. Install Racks and Cabinets (standard 19-inch equipment rack, for instance: Ericsson BYB 504).
2. Install Dell PowerEdge servers and switch units.
3. Install additional switches and components for larger configurations.
4. Connect control cables.
5. Connect traffic and storage cables.
6. Connect external cables.
7. Connect power cables.

1.4 Configuration

The following configuration is used:

Table 2 Hardware Configuration

Number of Dell PowerEdge Servers	8 × R630
Number of Extreme Control Switches	2 × X440
Number of Extreme Traffic Switches	2 × X670V

2 Preparing the Installation

2.1 Unpacking and Checking the Material

Follow the instructions from the suppliers on how to unpack the equipment.

Verify that:

- The delivery is complete according to documentation.
- All boxes are free from damages.
- The content of the boxes, the delivered equipment, is undamaged and complete according to the documentation of parts.

Report all deviations to the implementation project.

Handle all optical cables with care. Do not bend optical cables.

3 Installing Cabinets

3.1 Moving and Handling the Cabinet

See applicable section in cabinet installation instructions.

Note: At least two persons are required.

Caution!

The equipment is heavy. Lifting the equipment without the aid of a lifting device can cause injury.

3.2 Mechanical Installation

See applicable section in cabinet installation instructions:

- Install tip protection.
- Attach cabinets together.
- Secure the cabinets in earthquake areas.

3.3 Grounding the Cabinet

See applicable section in cabinet installation instructions:

- Connect a grounding cable between cabinets, if necessary.

3.4 Connecting Power

Danger!

Improper electrical installation can cause fire or electric shock that is likely to be fatal. Only a qualified and authorized electrician is permitted to install or modify electrical installations.

1. Install AC power distribution units (PDU) and cables in the cabinet in accordance with supplier instructions. The following AC power outlets are required:
   - Two C13 outlets for each Dell Server
   - 2 × two C13 outlets for each pair of Extreme switches
   - One C13 outlet for redundant power to Extreme control switches, if used
2. Make sure that the AC power source is switched off.

3. Connect AC power cables to the cabinet.

4 Installing Units

The equipment location in the cabinet is unique for each site and is therefore not included in this document.

4.1 Installing the Dell Power Edge Server

This section describes how to install the Dell Servers in a rack. Install the server units one by one.

The configuration in this example has eight servers.

Do!

Always use an approved ESD wrist strap when working with sensitive equipment. Damage to components mounted on printed board assemblies can occur if an ESD wrist strap is not used.

Install the Dell servers by performing the steps below:

1. Installing a server.

a Locate the following needed parts:

- Two Dell Ready Rails static rails
- Two chassis rail members
- Two Velcro straps.

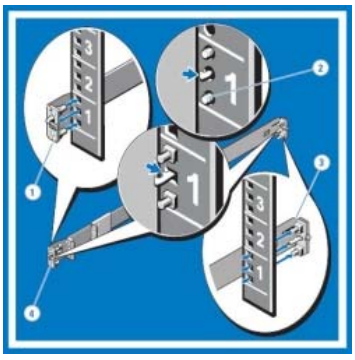
b Installing Tool-less Static Rails (Four-Post):

(1) Position the left and right rail end pieces labeled FRONT facing inward and orient each end piece to seat in the round or square holes on the front side of the vertical rack flanges.

(2) Align each end piece to seat the pegs in the bottom hole and the top hole of the first U.

(3) Engage the back end of the rail until it fully seats on the vertical rack flange. Repeat these steps to position and seat the front-end piece on the vertical flange.

(4) To remove the rails, pull on the latch release button on the end piece midpoint and unseat each rail.

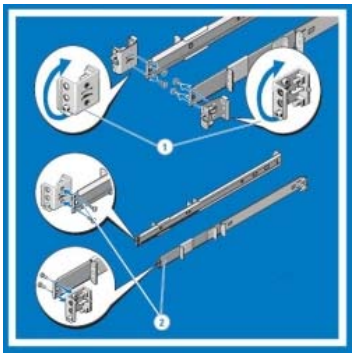


c Configuring Flush-Mount Static Rails (Two- or Four-Post):

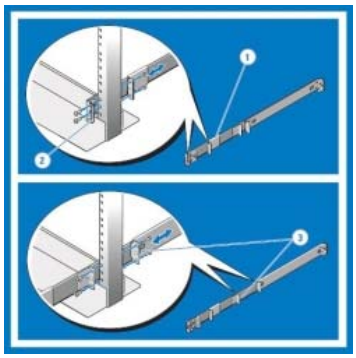
Note: The rails as they are shipped must be converted to tooled rails to install in a flush-mounted rack.

(1) Lay both rails flat with both end pieces facing up. Remove the two screws on the front-end pieces and rotate each piece 180 degrees.

(2) Reattach both end pieces with the two pairs of screws.



d Installing Flush-Mount or Center-Mount Static Rails (Two-Post):



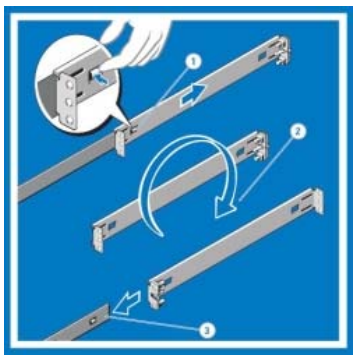
Note: To configure the rails for a tooled flush-mount installation, refer to step c.

(1) Attach right and left mounting rails to the front mounting flanges with two pairs of screws.

(2) Slide each flush-mount adjustable bracket forward against the two-post rack. Secure each side to the mounting flange with two pairs of screws.

(3) For a center-mount installation, push the adjustable rear mounting brackets toward the back of the right and left mounting rails. Attach the fixed center mount brackets to the front mounting flanges with two pairs of screws. Slide both the adjustable rear-mounting brackets forward against the two-post rack. Secure each side to the mounting flange with two screws.

e Configuring Four-Post Threaded Static Rails:



Note: To configure the front-end pieces of your rails for a tooled installation, refer to step c.

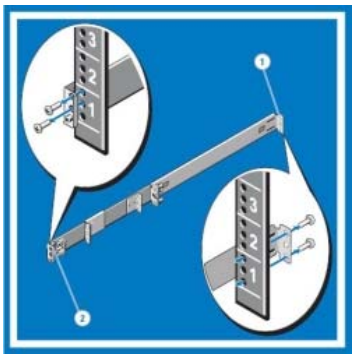
To configure the rear end pieces of your rails for a tooled installation, do the following:

(1) Press the rail release button on each rail to disengage the rear segments.

(2) Rotate the rear segments 180 degrees so that the tooled end piece is in the rear position.

(3) With the end pieces positioned outward, align and rejoin the midsections and slide the rear segments into place until the release button engages.

f Installing and Removing Four-Post Threaded Static Rails:

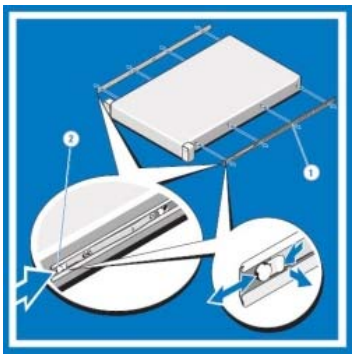


Note: To configure the rails for a tooled installation, refer to step c and step e.

(1) Attach the right and left mounting rails to the front mounting flanges with two pairs of screws.

(2) Repeat the preceding step for the rear mounting flanges.

g Installing Chassis Rail Members on the server:



(1) Place the server system on a level surface and align the keyhole slots on the chassis rail members with the pins on the system.

(2) Slide the chassis rail members toward the back of the system until they lock into place. To remove the chassis rail members, lift the lock spring until it clears the head of the pin. Slide the chassis rail member towards the front of the system until the pins slip through the keyhole slots.

h Installing and Securing the Server System in the Rack:

(1) Insert the ends of the chassis rail members into the front of the static rails and push the system into the rack.

(2) For tool-less four-post racks and center-mount two-post configurations, the slam latches engage automatically as the system is pushed into the rack.

(3) To secure the system for shipment in the rack or for other unstable environments, locate and tighten the hard-mount screw under each latch.

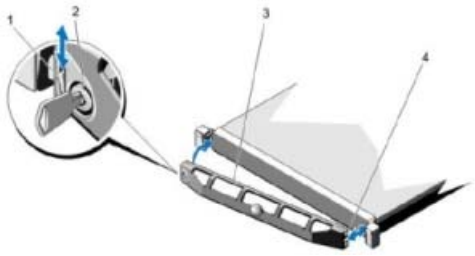
2. Installing or Removing the front bezel

Installing the front Bezel:

- Hook the right end of the bezel onto the chassis.
- Fit the free end of the bezel onto the system.
- Secure the bezel with the keylock.

Removing the front Bezel:

- Unlock the keylock at the end of the bezel.
- Lift the release latch next to the keylock.
- Rotate to the left end of the bezel away from the front panel.
- Unhook the right end of the bezel and pull the bezel away from the system.



4.2 Installing Extreme Switches

This section describes how to install the X440 and X670V switches.

The switches can be installed from the front or the back of the cabinet. This document shows installation from the back of the cabinet, which provides easier and neater cabling. Make sure that the right version of X670V is selected as there are two versions to choose from:

☐ Back to Front cooling, must be installed from back of cabinet.

☐ Front to Back cooling, must be installed from front of cabinet.

Figure 1 shows the front of the 24t variant of Extreme X440, whilst Figure 2 shows the front of the 48t variant.

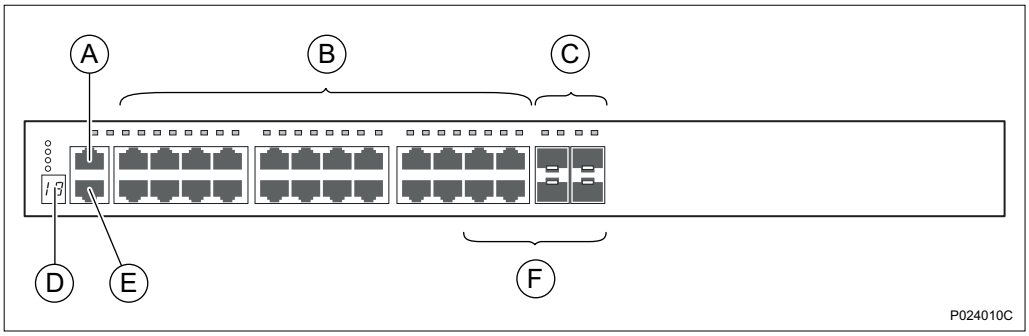


Figure 1 Extreme X440-24t, Front

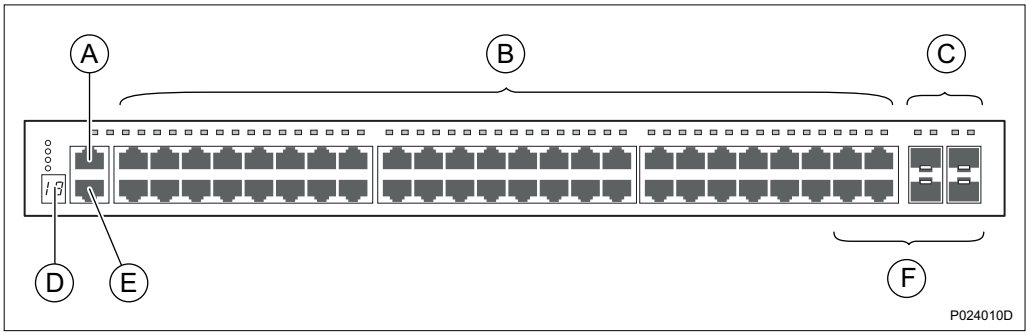


Figure 2 Extreme X440-48t, Front

Figure 3 shows the rear of both variants of Extreme X440.

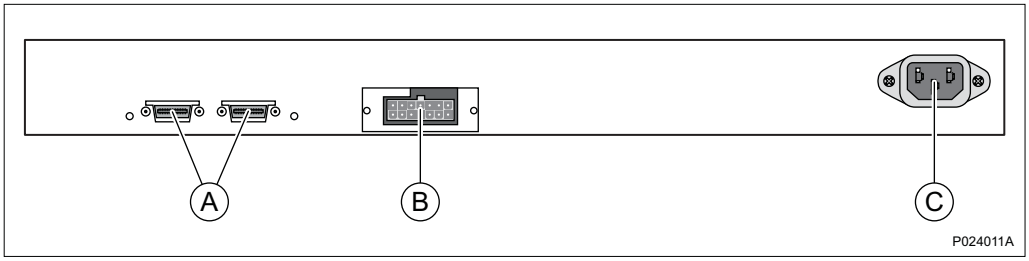


Figure 3 Switch X440, Rear

Figure 4 shows the front of Extreme X670.

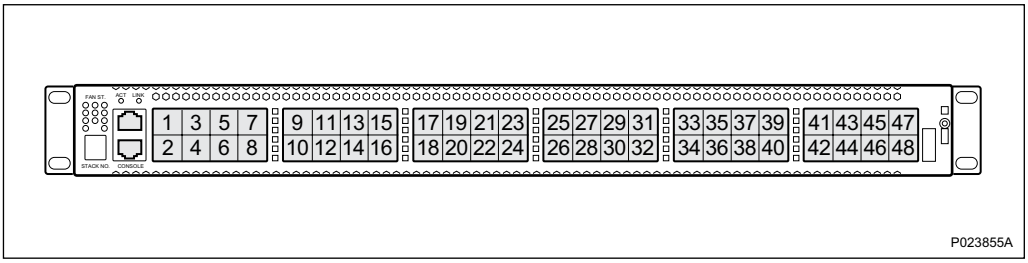


Figure 4 Switch X670V, Front

Figure 5 shows the rear of Extreme X670.

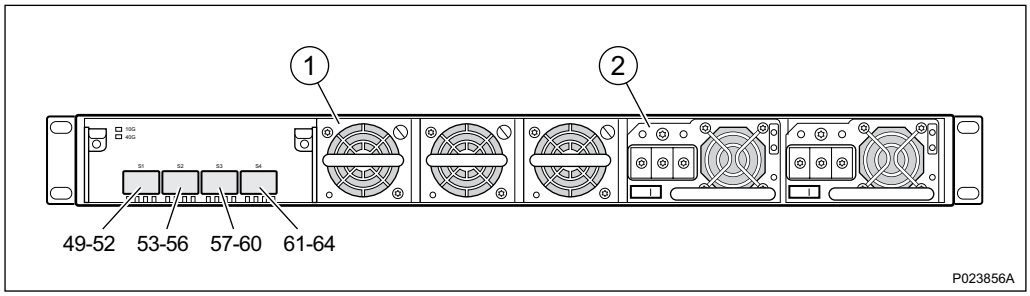


Figure 5 Switch X670V, Rear

1. Unpack the switches and check that they are undamaged and that all parts are included.
2. Prepare the location in the cabinet by installing:
   - Four cage nuts in the front
   - Four cage nuts in the rear
3. Prepare the units by installing the front cabinet mounting brackets on the switch.
4. Install the unit from the rear of the cabinet.

   The front panel with most of the connectors needs to face backwards on the same side as the Dell PowerEdge rear side with all the connectors to have all cabling at the same side of the cabinet. The fans are marked AIR IN.
5. Tighten the screws to 10 Nm, using a torque wrench and a T30 TORX bit.
6. Install the extreme switch rear mounting brackets from the front of the cabinet and secure them to the cabinet using the supplied screws. Tighten the screws to 10 Nm, using a torque wrench and a T30 TORX bit.

For more information about installing the switches, see the documentation supplied with the unit.

5 Equipping Units with Small Form-Factor Pluggable Units

This section describes where to install Small Form-Factor Pluggable (SFP+) and Quad Small Form-Factor Pluggable (QSFP+) modules.

To install an SFP+ module, do the following:

1. Unpack the SFP+ module and verify that it is of the correct type (see specifications in the following tables) and that it is undamaged.

2. Remove the protective plug from the port in the unit.

3. Install the SFP+ module, observing the right side up, and push it into the port until the connector mates.

4. Leave the protective plug or plugs installed on the SFP+ module until it is time to connect an optical fiber cable.

See Section 9.1 on page 26 for more information about the units, boards, and connectors.

5.1 Switch Units

This section describes how to equip ports in Extreme X670V with SFP+ modules.

Install SFP modules in the Extreme X670V Switches as listed in Table 3.

Table 3 SFP+ Modules for Extreme Switch X670V

Ports	Type of SFP+ Module	Number of Servers
Front Ports 1-16	10GBASE-SR SFP+ (10301)	8
Front Port 48	1000BASE-SX SFP RJ45 (10070H)	Independent of number of Servers
VIM ports S1 and S2	40GBASE-SR4 QSFP+ (10319)	

5.2 Server Units

This section describes how to equip ports in the Dell PowerEdge Servers with SFP+ modules.

Install four SFP modules per Dell Server as listed in Table 4.

Table 4 SFP+ Modules for Each Dell PowerEdge

Ports	Type of SFP Module
PCI slot 2, port 1 and 2	Dell 10GbE SR SFP+ Transceiver, 10 Gb and 1 Gb compatible for Intel and Broadcom Server Adapter
PCI slot 3, port 1 and 2	Dell 10GbE SR SFP+ Transceiver, 10 Gb and 1 Gb compatible for Intel and Broadcom Server Adapter

6 Installing Cables

This section describes how to connect cables. Mark cables according to local requirements.

6.1 Connecting Control Cables

Two or three switches are used for the control network. If two switches are used, the iDRAC network is divided between the two control switches. When three switches are used, the iDRAC network is handled by the third switch. In this document, connections using two switches are described.

Connect cables for control network between the units according to the following information.

6.1.1 Control Switch to Dell PowerEdge Servers Cables

The connection of cables for the control network depends on the number of ports available in the X440 control switch. In this example, an X440-24t unit was used. An option is to use the X440-48t with the same configuration settings. Connections for both variants are identical and are described in the tables below.

For other configurations, make sure that the following ports are allocated in the control network switches:

- One port for LXC / laptop
- One port for X670V
- Two ports for interconnection between the two control switches
- One port for Management
- One port for External Storage, optional
- The remaining ports can be allocated to servers. One port is needed for the Control Network and one for iDRAC. The iDRAC Network is divided between the two control switches (SWA and SWB), but can also be handled by a separate switch.

The connector orientation is shown on Figure 6, and the control cabling for a configuration consisting of eight Dell PowerEdge servers is described in Table 5.

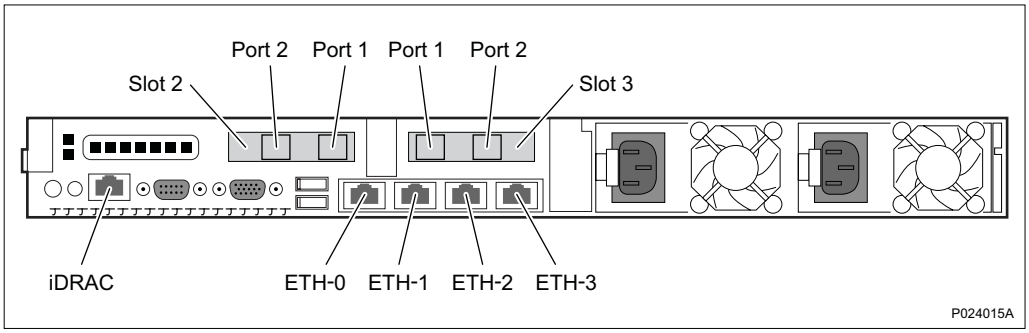


Figure 6 Connector Orientation, Dell PowerEdge, Back

Table 5 Connections between Dell PowerEdge Servers and Control Switches, X440-24t and X440-48t

Cable Number	From Unit	From Port	Type of Cable	To Unit	To Port
Server-1 Ctrl-1	Server-1	ETH-0	RJ45 - RJ45	SWA-X440	1
Server-1 Ctrl-2	Server-1	ETH-1	RJ45 - RJ45	SWB-X440	1
Server-1 iDRAC	Server-1	iDRAC	RJ45 - RJ45	SWA-X440	11
Server-2 Ctrl-1	Server-2	ETH-0	RJ45 - RJ45	SWA-X440	2
Server-2 Ctrl-2	Server-2	ETH-1	RJ45 - RJ45	SWB-X440	2
Server-2 iDRAC	Server-2	iDRAC	RJ45 - RJ45	SWA-X440	13
Server-3 Ctrl-1	Server-3	ETH-0	RJ45 - RJ45	SWA-X440	3
Server-3 Ctrl-1	Server-3	ETH-1	RJ45 - RJ45	SWB-X440	3
Server-3 iDRAC	Server-3	iDRAC	RJ45 - RJ45	SWA-X440	15
Server-4 Ctrl-1	Server-4	ETH-0	RJ45 - RJ45	SWA-X440	4
Server-4 Ctrl-2	Server-4	ETH-1	RJ45 - RJ45	SWB-X440	4
Server-4 iDRAC	Server-4	iDRAC	RJ45 - RJ45	SWA-X440	17
Server-5 Ctrl-1	Server-5	ETH-0	RJ45 - RJ45	SWA-X440	5

Cable Number	From Unit	From Port	Type of Cable	To Unit	To Port
Server-5 Ctrl-2	Server-5	ETH-1	RJ45 - RJ45	SWB-X440	5
Server-5 iDRAC	Server-5	iDRAC	RJ45 - RJ45	SWA-X440	19
Server-6 Ctrl-1	Server-6	ETH-0	RJ45 - RJ45	SWA-X440	6
Server-6 Ctrl-2	Server-6	ETH-1	RJ45 - RJ45	SWB-X440	6
Server-6 iDRAC	Server-6	iDRAC	RJ45 - RJ45	SWB-X440	11
Server-7 Ctrl-1	Server-7	ETH-0	RJ45 - RJ45	SWA-X440	7
Server-7 Ctrl-1	Server-7	ETH-1	RJ45 - RJ45	SWB-X440	7
Server-7 iDRAC	Server-7	iDRAC	RJ45 - RJ45	SWB-X440	13
Server-8 Ctrl-1	Server-8	ETH-0	RJ45 - RJ45	SWA-X440	8
Server-8 Ctrl-2	Server-8	ETH-1	RJ45 - RJ45	SWB-X440	8
Server-8 iDRAC	Server-8	iDRAC	RJ45 - RJ45	SWB-X440	15

6.1.2 Control Switch to Traffic Switch

The control cabling for the connection of the Traffic/Storage switches is described in Table 6.

Table 6 Connections between Traffic/Storage Switches, the External Storage Node, and Control Switches, X440-24t and X440-48t

Cable Number	From Unit	From Port	Type of Cable	To Unit	To Port in X440
SWA-X670V O&M	SWA-X670V	48	RJ45 - RJ45	SWA-X440	23
SWB-X670V O&M	SWB-X670V	48	RJ45 - RJ45	SWB-X440	23

6.1.3 Control Switch Inter Switch Link (ISL) Cables

The control cabling for the interconnection of the control switches is described in Table 7.

Table 7 Connections between Control Switches, X440-24t and X440-48t

Cable Number	From Unit	From Port in X440	Type of Cable	To Unit	To Port in X440
SWA-SWB--X440 ISL-1	SWA-X440	20	RJ45 - RJ45	SWB-X440	20
SWA-SWB--X440 ISL-2	SWA-X440	21	RJ45 - RJ45	SWB-X440	21

6.1.4 Control Switch Management and Laptop Cables

The control cabling for connection of Management port and External Laptop are described in Table 8.

Table 8 Connections between Control Switches, X440-24t and X440-48t

Cable Number	From Unit	From Port in X440	Type of Cable	To Unit	To Port in X440
SWA-SWA-X440 Mgmt	SWA-X440	18	RJ45 - RJ45	SWA-X440	Management
SWB-SWB-X440 Mgmt	SWB-X440	18	RJ45 - RJ45	SWB-X440	Management
LXC A	SWA-X440	24	RJ45 - RJ45	LXC or Laptop	
LXC B	SWB-X440	24	RJ45 - RJ45	LXC or Laptop	

6.2 Connecting Traffic and Storage Cables

This section describes how to connect optical cables for the CEE.

Note: Exercise care when handling optical cables:

- Optical cables must not be bent in a radius smaller than 50 mm.
- Do not touch the connector ends.
- Remove the protective caps in SFP+ and cable connectors before connecting them.
- Do not leave SFP+ modules and Optical connectors without the protective caps, remove caps only when they are to be connected.

Cables must be marked according to local regulations.

Connect the optical cables as shown in the following tables. The connections are in groups of four to enable the use of multi-fiber cables

Connect cables for the traffic and storage network between the units according to the following information.

6.2.1 Traffic and Storage Switch to Dell PowerEdge Servers Cables

The connector orientation is shown on Figure 6, and the traffic and storage cabling for a configuration consisting of eight Dell PowerEdge servers is shown in Table 9.

Table 9 Connections between Dell PowerEdge Servers and Traffic Switches

Cable Number	From Unit	From Port	Type of Cable	To Unit	To Port
Server-1 10GE traffic-1	Server-1	Slot-2 Port-1	LC - LC	SWA-X670V	1
Server-1 10GE traffic-2	Server-1	Slot-3 Port-1	LC - LC	SWB-X670V	1
Server-1 10GE storage-1	Server-1	Slot-2 Port-2	LC - LC	SWA-X670V	2
Server-1 10GE storage-2	Server-1	Slot-3 Port-2	LC - LC	SWB-X670V	2
Server-2 10GE traffic-1	Server-2	Slot-2 Port-1	LC - LC	SWA-X670V	3
Server-2 10GE traffic-2	Server-2	Slot-3 Port-1	LC - LC	SWB-X670V	3
Server-2 10GE storage-1	Server-2	Slot-2 Port-2	LC - LC	SWA-X670V	4
Server-2 10GE storage-2	Server-2	Slot-3 Port-2	LC - LC	SWB-X670V	4

Cable Number	From Unit	From Port	Type of Cable	To Unit	To Port
Server-3 10GE traffic-1	Server-3	Slot-2 Port-1	LC - LC	SWA-X670V	5
Server-3 10GE traffic-2	Server-3	Slot-3 Port-1	LC - LC	SWB-X670V	5
Server-3 10GE storage-1	Server-3	Slot-2 Port-2	LC - LC	SWA-X670V	6
Server-3 10GE storage-2	Server-3	Slot-3 Port-2	LC - LC	SWB-X670V	6
Server-4 10GE traffic-1	Server-4	Slot-2 Port-1	LC - LC	SWA-X670V	7
Server-4 10GE traffic-2	Server-4	Slot-3 Port-1	LC - LC	SWB-X670V	7
Server-4 10GE storage-1	Server-4	Slot-2 Port-2	LC - LC	SWA-X670V	8
Server-4 10GE storage-2	Server-4	Slot-3 Port-2	LC - LC	SWB-X670V	8
Server-5 10GE traffic-1	Server-5	Slot-2 Port-1	LC - LC	SWA-X670V	9
Server-5 10GE traffic-2	Server-5	Slot-3 Port-1	LC - LC	SWB-X670V	9
Server-5 10GE storage-1	Server-5	Slot-2 Port-2	LC - LC	SWA-X670V	10
Server-5 10GE storage-2	Server-5	Slot-3 Port-2	LC - LC	SWB-X670V	10
Server-6 10GE traffic-1	Server-6	Slot-2 Port-1	LC - LC	SWA-X670V	11
Server-6 10GE traffic-2	Server-6	Slot-3 Port-1	LC - LC	SWB-X670V	11
Server-6 10GE storage-1	Server-6	Slot-2 Port-2	LC - LC	SWA-X670V	12
Server-6 10GE storage-2	Server-6	Slot-3 Port-2	LC - LC	SWB-X670V	12
Server-7 10GE traffic-1	Server-7	Slot-2 Port-1	LC - LC	SWA-X670V	13
Server-7 10GE traffic-2	Server-7	Slot-3 Port-1	LC - LC	SWB-X670V	13
Server-7 10GE storage-1	Server-7	Slot-2 Port-2	LC - LC	SWA-X670V	14

Cable Number	From Unit	From Port	Type of Cable	To Unit	To Port
Server-7 10GE storage-2	Server-7	Slot-3 Port-2	LC - LC	SWB-X670V	14
Server-8 10GE traffic-1	Server-8	Slot-2 Port-1	LC - LC	SWA-X670V	15
Server-8 10GE traffic-2	Server-8	Slot-3 Port-1	LC - LC	SWB-X670V	15
Server-8 10GE storage-1	Server-8	Slot-2 Port-2	LC - LC	SWA-X670V	16
Server-8 10GE storage-2	Server-8	Slot-3 Port-2	LC - LC	SWB-X670V	16

6.2.2 Switch Interconnect Cables

This section describes connection of the stack cable between Switch A and Switch B in configurations using two X670V, see Table 10.

Table 10 Inter Switch Link Cables

From Switch	From Port	Cable Type	To Port	To Switch
SWA-X670V	57	40GBASE-SR4 QSFP-QSFP cable, 0.5 m length	57	SWB-X670V
SWA-X670V	58		58	SWB-X670V
SWA-X670V	59		59	SWB-X670V
SWA-X670V	60		60	SWB-X670V
SWA-X670V	61	40GBASE-SR4 QSFP-QSFP cable, 0.5 m length	61	SWB-X670V
SWA-X670V	62		62	SWB-X670V
SWA-X670V	63		63	SWB-X670V
SWA-X670V	64		64	SWB-X670V

6.3 Connecting External Cables

This section describes connection of Cable connections between Border Gateway and the Switches in configurations using two X670V, see Table 11. Each table describes connections for a 40 Gigabit Ethernet (GE) or 4 times 10GE towards BGW. Using connections in both tables gives a total bandwidth of 80 GE.

Table 11 Border Gateway Connections 40GE

From		Cable			To	
Border GW	**From Port**[(1)]	**Connector**	**Cable Type**	**Connector**	**Port**	**Switch**
BGW A	Site specific	LC - A1/B1	8f OM3 MTP-LC Cable with connectors or 40 GE cable	MTP	49	SWA-X670V
BGW A	Site specific	LC - A2/B2			50	SWA-X670V
BGW A	Site specific	LC - A3/B3			51	SWA-X670V
BGW A	Site specific	LC - A4/B4			52	SWA-X670V
BGW B	Site specific	LC - A1/B1	8f OM3 MTP-LC Cable with connectors or 40 GE cable	MTP	49	SWB-X670V
BGW B	Site specific	LC - A2/B2			50	SWB-X670V
BGW B	Site specific	LC - A3/B3			51	SWB-X670V
BGW B	Site specific	LC - A4/B4			52	SWB-X670V

(1) Needs to be defined locally

6.4 Connecting Power Cables

Connect AC power cables from the distribution power outlets in the cabinet to the power inlet connectors on the units:

Danger!

Improper electrical installation can cause fire or electric shock that is likely to be fatal. Only a qualified and authorized electrician is permitted to install or modify electrical installations.

- Dell Power Edge Blade (two cables per blade) to the cabinet AC power distribution bar. The supplied cables have three flat pins in the AC power distribution bar end. C13 cables must be used.
- Extreme switches X440 (one per switch, two switches) to the cabinet AC power distribution bar. C13 cables must be used.

- Redundant power supply for Extreme switches X440 (one per system) to the cabinet AC power distribution bar. A C13 cable must be used.
- Extreme switches X670 (two per switch, two switches) to the cabinet AC power distribution bar. C13 cables must be used.

7 Powering On

This section describes how to power on the system.

1. Make sure all units and fuses on the Power Distribution Units (PDU) are switched off.
2. Switch on the AC power outside the cabinet.
3. Switch on the fuses for the traffic switches on the PDU and switch on the AC power switch on the traffic switches.
4. Switch on the fuses for the servers and switch on the AC power switches on the servers.
5. Check that the indicators are on for all units in the cabinet. Refer to instructions supplied with each unit for information about the interpretation of the indicators.
6. Report any findings to the implementation project.

8 Post Installation Activities

8.1 Concluding Routines

Before leaving the site, perform the following procedure:

1. Clean the site and remove objects such as wrapping paper and cable clippings.
2. Dispose of waste in accordance with local regulations.
3. Fill in the verification checklist in the *Site Installation Documentation*.

4. Report any faults according to local requirements.

5. Lock Cabinets, if applicable.

6. Hand over the *Site Installation Documentation* to the person responsible for the site.

7. Lock all doors and gates to the site.

8. Report to the implementation project that the HW installation is complete and that the system is ready for installation of SW.

Ericsson strongly recommends to pay attention to the environment when cleaning the site after installation. In particular, recycle all waste that can be recycled, and sort the rest so that they can be disposed of in accordance with local regulations. Use the checklist in Table 12 to recycle and sort waste after the procedures in this instruction are completed.

Table 12 Waste Recycling and Sorting Checklist

Recycle or Sort As	**Item**	**YES**	**N/A**
Metals	Nuts, bolts, washers, and screws		
	Pieces of cable with high metallic content		
	Waste metal from cable ladders		
Paper	Paper		
Plastics	Bubble plastic		
	Cable insulation from crimping, brazing, or welding		
	Cable tie clippings		
	Foam		
	Packing chips		
	Pieces of cable with low metallic content		
	Polystyrene		
Wood	Wood		
Notes:			

9 Reference Information

This section contains drawings showing the connectors on the related units.

9.1 Dell PowerEdge

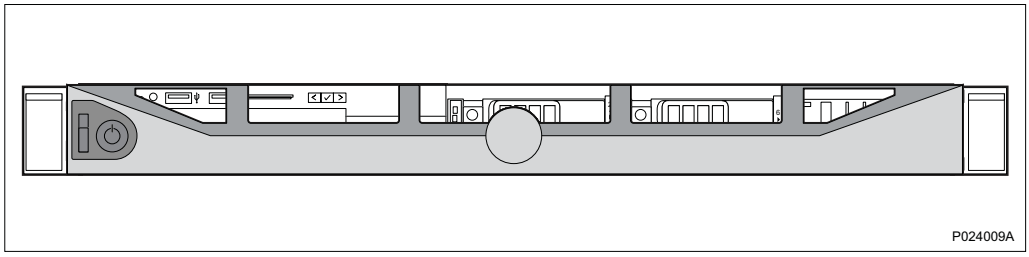


Figure 7 Dell PowerEdge, Front, with Bezel

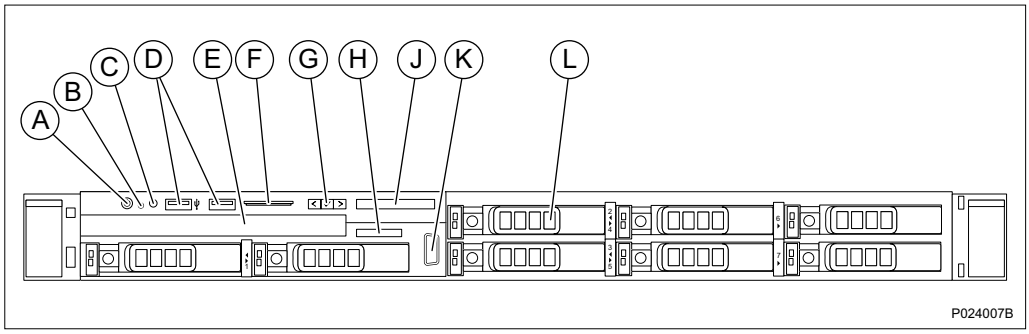


Figure 8 Dell PowerEdge with Space for 8 Hard Drives, Front, with Bezel Removed

Table 13 Dell Power Edge Front Units

Item	Description
A	Power-on indicator, power button
B	NMI button
C	System identification button
D	USB connector (two)
E	Optical drive (optional)
F	vFlash media card slot
G	LCD menu buttons
H	Information tag
J	LCD panel

Item	Description
K	Video connector
L	Hard drives (eight)

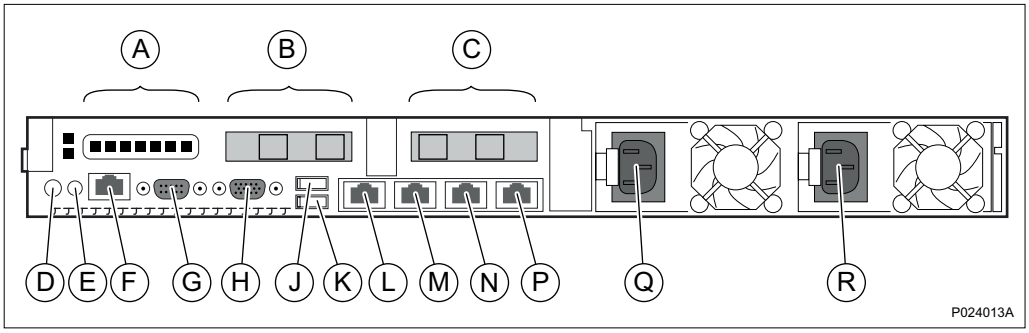


Figure 9 Dell PowerEdge, Back

Table 14 Dell Power Edge, Back

Item	Description
A	PCIe expansion card slot 1
B	PCIe expansion card slot 2, equipped with PCIe transceiver card
C	PCIe expansion card slot 3, equipped with PCIe transceiver card
D	System identification button
E	System identification connector
F	iDRAC8 Enterprise port
G	Serial connector
H	Video connector
J, K	USB connectors (two)
L, M, N, P	Ethernet connectors (four)
Q	Power supply (PSU1)
R	Power supply (PSU2)

9.2 Switches

9.2.1 Extreme Switch X440

The X440 switch front contains 24 or 48 ports, depending on the model.

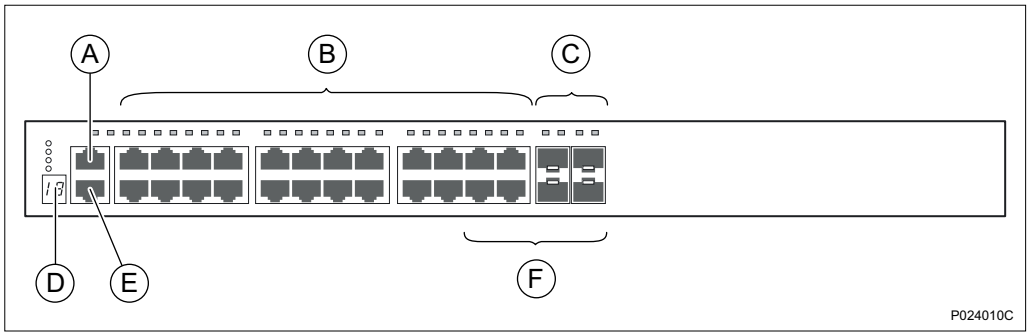


Figure 10 Switch X440-24t, Front

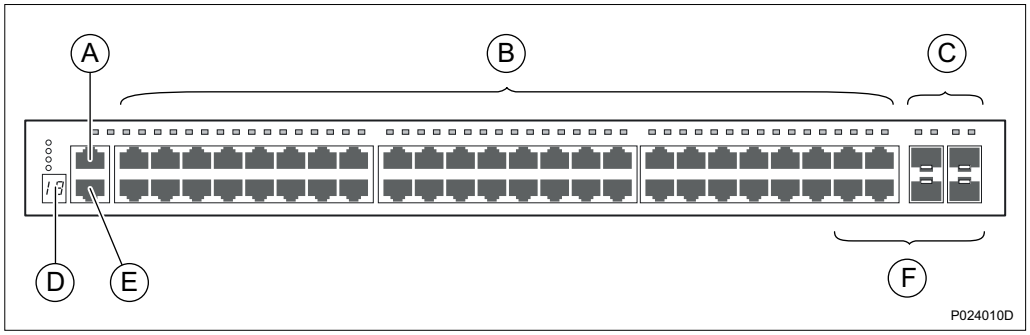


Figure 11 Extreme X440-48t, Front

Table 15 Switch X440 Front

Pos	Description
A	Ethernet management port.
B	10/100/1000BASE-T ports.
C	SFP ports.
D	Stack number indicator.
E	Console port.
F	Combination ports.

The rear of the X440 switch has stacking ports, redundant power connector, and 1 AC power inlet.

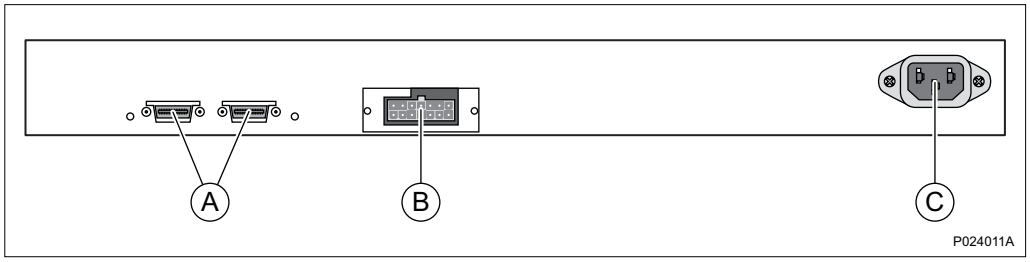


Figure 12 Switch X440, Rear

Table 16 Switch X440 Rear

Pos	Description
A	Stacking ports.
B	Redundant power connector.
C	AC power input connector.

9.2.2 Extreme Switch X670V

The X670V switch front contains 48 SFP+ cages which are equipped with SFP+ modules.

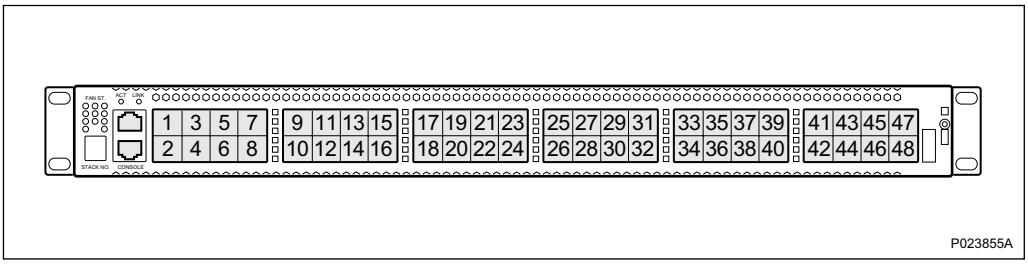


Figure 13 Switch X670V, Front

The rear of the X670V switch has four QSFP+ cages witch are equipped with QSFP+ modules, air intakes for the fans, and AC (or DC) power inlets.

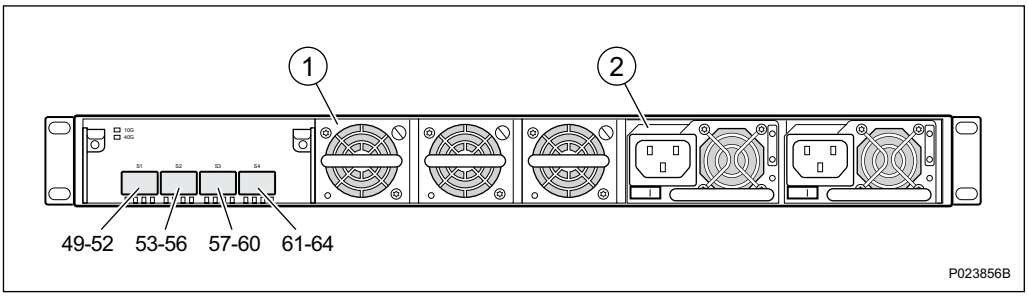


Figure 14 Switch X670V, Rear

Table 17 Switch X670V Rear Items

Pos	Description
1	Fan units, three are used for redundancy.
2	Power Units (AC shown). Two power units are used for redundancy.
49-64	Space for four QSFP+ modules