

# Expansion Modules for Dell Networking Switches (v2.3)

Dell Engineering  
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## Revisions

Date	Description	Authors
August 2014	Release v2.3. Includes interchangeability of 10GE CX-4 modules and Stacking modules on M6220 and 62xx switches	Victor Teeter, Mike Matthews
November 2013	Release v2.2. N3000 and N4000 Series switches and expansion modules added	Tracy Alonzo, Victor Teeter

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# Table of contents

Revisions.....	2
Executive Summary .....	4
1 Introduction .....	5
2 SFP+ Modules and Optic Requirements.....	6
3 Blade Switches and Corresponding Modules .....	7
3.1 Dell PowerEdge M1000e Blade Chassis.....	7
3.1.1 Dell Networking M8024-k .....	8
3.1.2 Dell Networking M8024 .....	9
3.1.3 Dell Networking M6220 .....	10
3.1.4 Dell Networking MXL .....	11
3.1.5 Dell Networking M6348 .....	11
4 Rack Switches and Corresponding Modules .....	12
4.1 Dell Networking N3000 Series (N3024, N3024F, N3024P, N3048, N3048P).....	12
4.2 Dell Networking N4000 Series (N4032, N4032F,N4064, N4064P).....	13
4.3 Dell Networking 8100 Series (8132, 8132F, 8164, and 8164F) .....	14
4.4 Dell Networking 7000 Series (7024, 7024P, 7024F, 7048, 7048P, 7048R, and 7048R-RA).....	15
4.5 Dell Networking 62xx Series (6224, 6224P, 6224F, 6248, 6248P).....	16
Support and Feedback.....	17
About Dell EMC .....	17

# Executive Summary

Dell EMC offers several blade and rack-mounted switches that can be upgraded by installing *expansion modules*. Using Dell EMC's FlexIO technology, these modules can be used to increase access ports, augment upstream bandwidth, extend media forms (10GBase-T, SFP+, QSFP+, CX4, XFP), or add stacking capabilities.

When possible, Dell EMC allows for a module to be used in multiple devices. You can freely move a module from one device to another device when supported.

This document identifies each Dell Networking switch and its corresponding set of expansion modules. In this document, [Blade Switches and Corresponding Modules](#) lists and describes modules for corresponding blade switches that install into a Dell M1000e blade chassis. [Rack Switches and Corresponding Modules](#) lists and describes modules for corresponding rack-mounted switches.

# 1 Introduction

Dell EMC has five groups of switches that can use the same modules interchangeably within its group. The following groups of switches can interchange expansion modules.

- Dell Networking M6220, 6224, 6224P, 6224F, 6248, and 6248P
- Dell Networking M8024 and M8024-k
- Dell Networking 7024, 7024P, 7024F, 7048, 7048P 7048R, and 7048R-RA
- Dell Networking 8132, 8132F, 8164, 8164F, N4032, N4032F, N4064, and N4064F and MXL
- Dell Networking N3024, N3024F, N3024P, N3048, and N3048P

**Note:** Whenever a module is moved from an MXL to an 81xx/N40xx or vice versa, reload the switch for proper functioning.

Unless noted, when two bays are available on a device, the same type of modules can be installed in both bays at the same time, or two different modules can be installed at the same time, one in each bay. Currently, there are no more than two expansion slots in any of the Dell Networking devices. Listed below are all possible configurations:

Bays Available	Bay Status
1	empty
1	installed
2	empty, empty
2	empty, installed
2	installed, empty
2	installed, installed
	<b>Note:</b> Any two modules can be installed, of same or different types, unless noted otherwise.

There are several CX4 expansion modules available for Dell Networking switches. Each CX4 module listed in the sections below mentions whether it has a clip-style or screw-style connector. Regardless of the type of connection required, Dell EMC has cables available to complete all CX4 connections. One such cable includes a CX4 clip-style on one end and a CX4 screw-style on the other, which may be required when connecting certain devices. Contact your Dell EMC Support Representative for more information.

## 2 SFP+ Modules and Optic Requirements

When selecting optic transceivers or cables for SFP+ modules described in this document, it is important to understand that while some SFP+ ports accept both 1G and 10G, not all do. As seen in the table below, most *fixed port* SFP+ ports on Dell Networking switches allow both 10G and 1G SFP+ optics; however, the *expansion module ports* often allow only 10G optics.

Table 1

Port Type /Switch	SFP+ expansion module ports	SFP+ fixed ports
<b>M6220</b>	10G only	n/a
<b>M8024</b>	10G only	n/a
<b>M8024-k</b>	10G only	1G and 10G
<b>Force10 MXL</b>	1G and 10G	n/a
<b>62XX</b>	10G only	n/a
<b>70XX</b>	1G and 10G	n/a
<b>81XX</b>	1G and 10G	1G and 10G
<b>N30XX</b>	1G and 10G	1G and 10G
<b>N40XX</b>	1G and 10G	1G and 10G

Dell Networking switches that do not accept expansion modules are not listed in the table above, even though they may contain SFP+ *fixed* ports (e.g. M6348 and 8000 series).

## 3 Blade Switches and Corresponding Modules

The sections below describe each blade switch and their corresponding modules.

### 3.1 Dell PowerEdge M1000e Blade Chassis

The Dell PowerEdge M1000e blade chassis has six slots in the rear allow Dell Networking switches to be installed. Most of these blade switches also have hardware upgrades of their own in the form of expansion modules as shown in Figure 1.

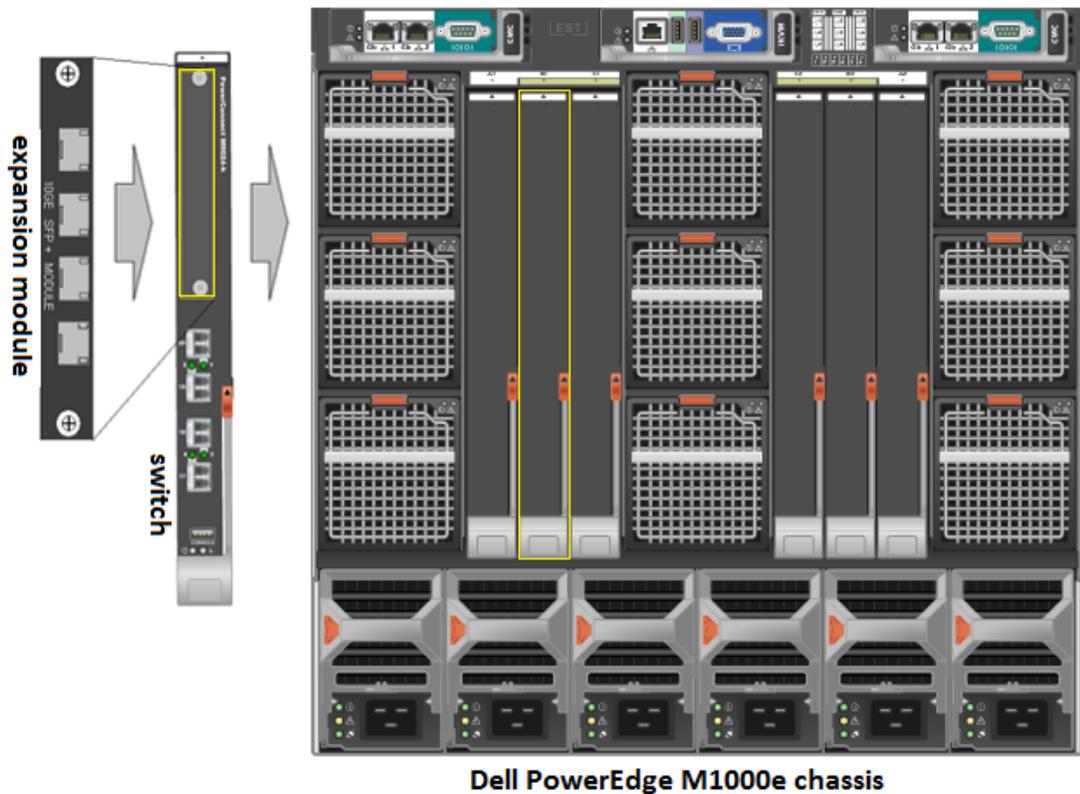


Figure 1 Example of an Expansion Module for Blade Switch

This section identifies each type of blade switch for the M1000e system and the corresponding expansion modules. It also provides an overview of each of these modules to help in identifying the right module for its purpose. A picture of each switch is provided below. Under each switch are pictures of supported modules, descriptions, and Dell EMC part numbers for identification.

### 3.1.1 Dell Networking M8024-k

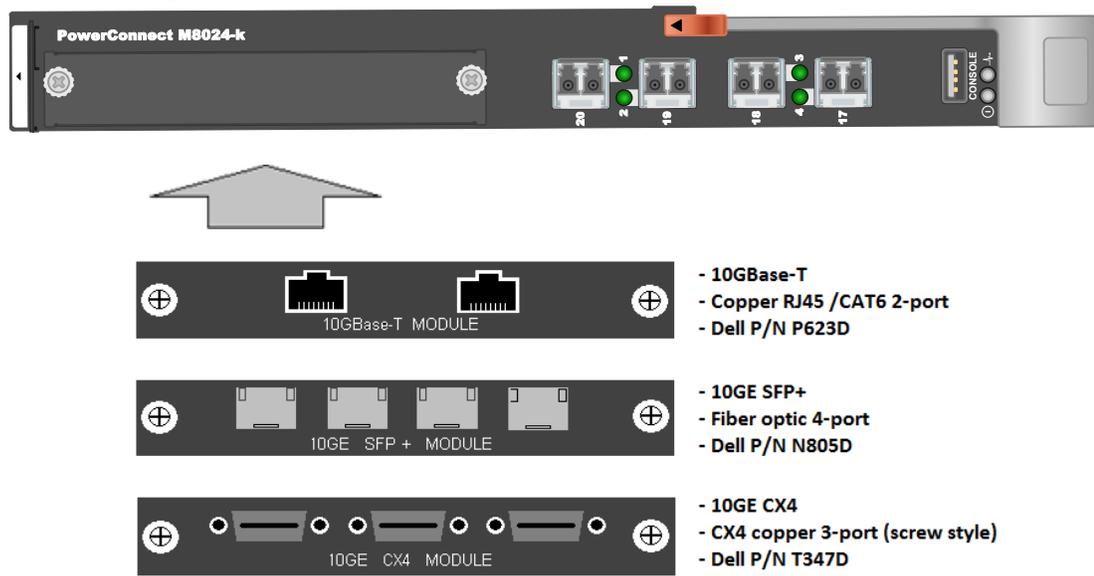


Figure 2 Dell Networking M8024-k Blade Switch (10G Ethernet) and Available Modules

The Dell Networking M8024 and M8024-k switches support the same expansion modules. Fixed SFP+ ports on an M8024-k can run 10G or 1G optics, but the SFP+ expansion module for the M8024-k can only run 10G optics. This limitation only applies to the M8024-k SFP+ expansion module and is not prevalent for other devices or modules (including the M8024).

### 3.1.2 Dell Networking M8024

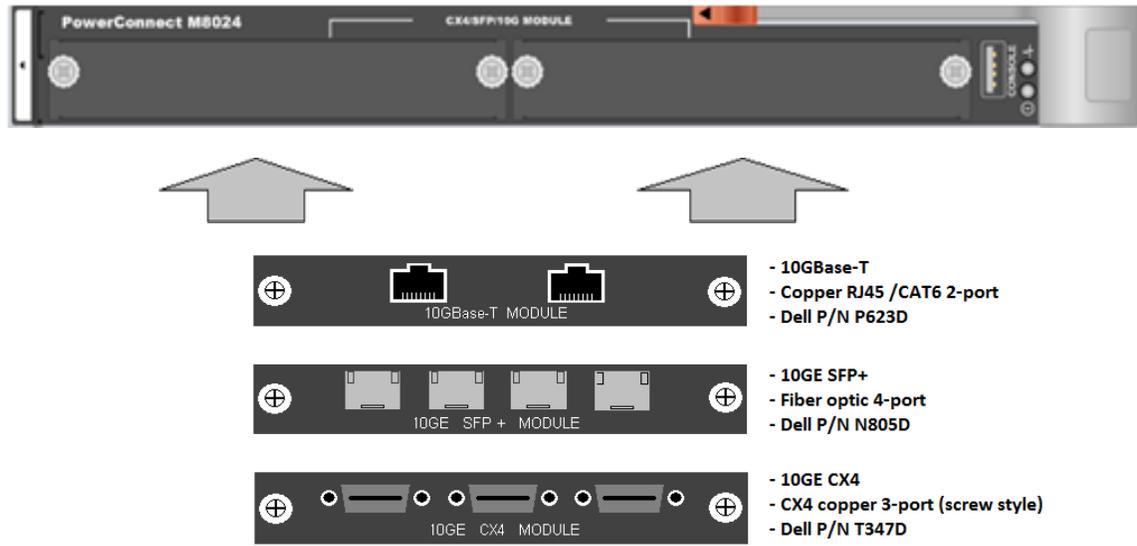


Figure 3 Dell Networking M8024 Blade Switch (10G Ethernet) and Available Modules

The Dell Networking M8024 and M8024-k switches support the same expansion modules. All three modules can be installed into either bay on the M8024.

### 3.1.3 Dell Networking M6220

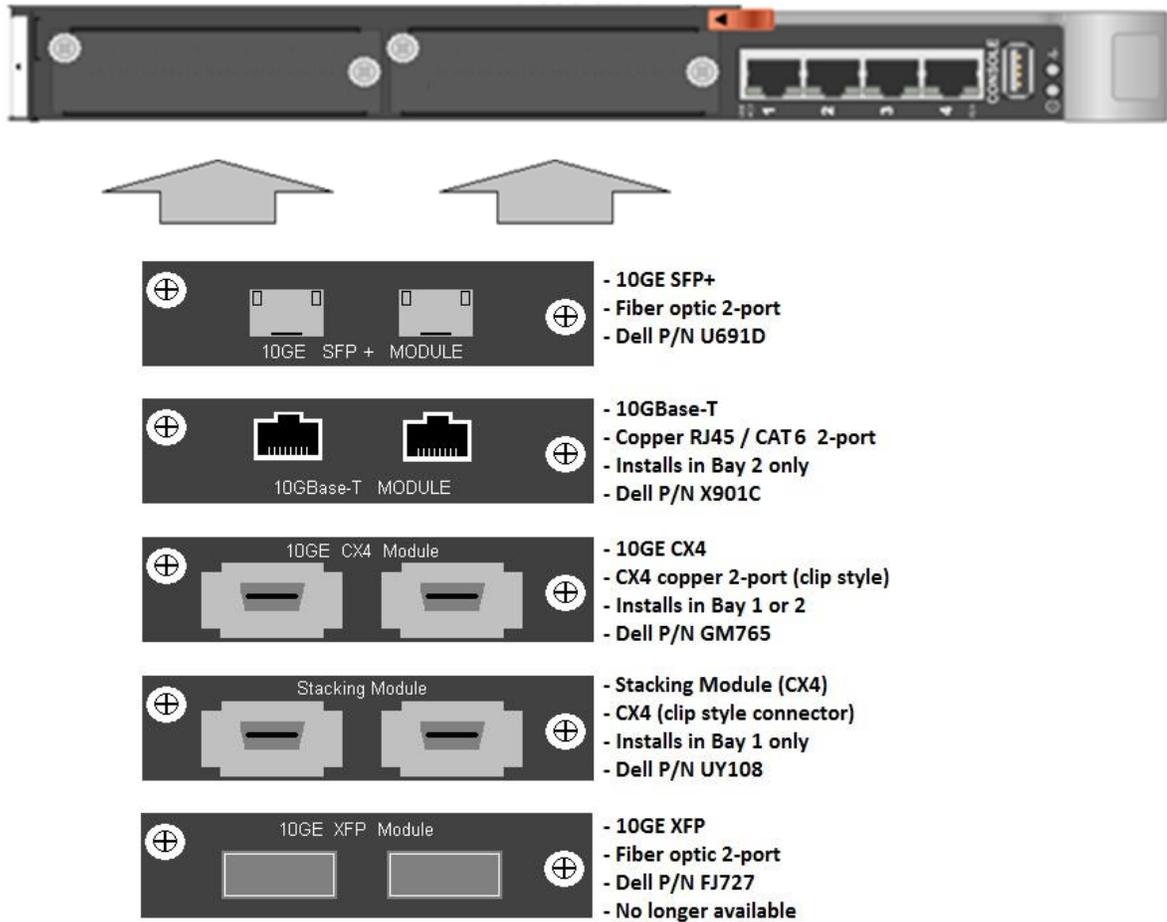


Figure 4 Dell Networking M6220 Blade Switch (1G Ethernet) and Available Modules

The Dell Networking M6220 switch supports the same expansion modules as the Dell Networking 6224, 6224P, 6224F, 6248, and 6248P switches. The stacking module only installs in Bay 1 (left bay). The 10GBase-T module only installs in Bay 2 (right bay).

#### Interchangeability of 10GE CX4 and Stacking Modules

Stacking modules and 10GE CX4 modules for this switch can be configured for either role (Ethernet or Stacking). By default, each module functions according to its *Configured Stack Mode* from the factory, which is printed on the face of the module. The *Configured Stack Mode* can also be displayed using the `show stack-port` command and can be changed using the `stack-port` command. Upon changing the role of a module, a reboot is required for the change to take effect. See the [M6220 User's Configuration Guide](#) for additional details on how to change roles.

### 3.1.4 Dell Networking MXL

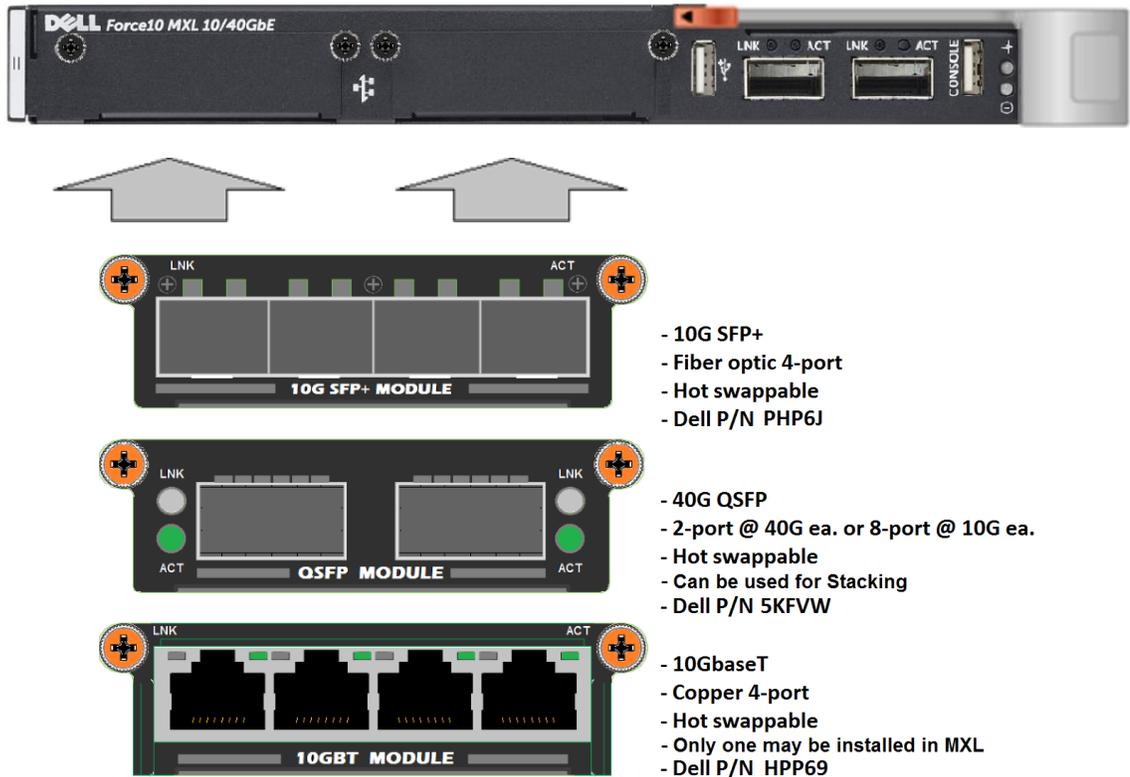


Figure 5 Dell Networking MXL Blade Switch (10/40G Ethernet) and Available Modules

The Dell Networking MXL supports the same expansion modules as the Dell Networking N40xx and 81xx series rack mounted switches. Whenever a module is moved from an N40xx/81xx to an MXL or vice versa, a reload of the switch is required for proper functioning of the module.

### 3.1.5 Dell Networking M6348



Figure 6 Dell Networking MXL Blade Switch (10/40G Ethernet) and Available Modules

The Networking M6348 has no expansion slots; therefore, it does not support any module. However, the front panel provides sixteen 10/100/1000Base-T auto-sensing full-duplex RJ-45 ports, two 10G SFP+ ports, and two 10G CX4 ports. There are also 32 internal 1G ports that connect to the servers in the chassis. The stacking ports on the front panel allow stacking between M6348 switches as well as between M6348 and Dell Networking 7000 series switches.

## 4 Rack Switches and Corresponding Modules

This section identifies each Dell Networking rack-mounted switch that supports expansion modules, lists each corresponding expansion module, and provides a brief overview of each to help identify the correct module for its purpose.

A picture of each switch is provided below. Under each switch are pictures of supported modules with descriptions and Dell EMC part numbers for identification and ordering.

### 4.1 Dell Networking N3000 Series (N3024, N3024F, N3024P, N3048, N3048P)

There are five different switch models in the Dell Networking N3000 series, each with one expansion slot located on the back of the chassis. The following modules are supported:

- 10GBASE-T module
- SFP+ module

Each expansion module has two ports. The modules are hot-swappable, so modules can be installed without rebooting the switch. The yellow outlines in Figure 7 show the expansion slot for each switch.

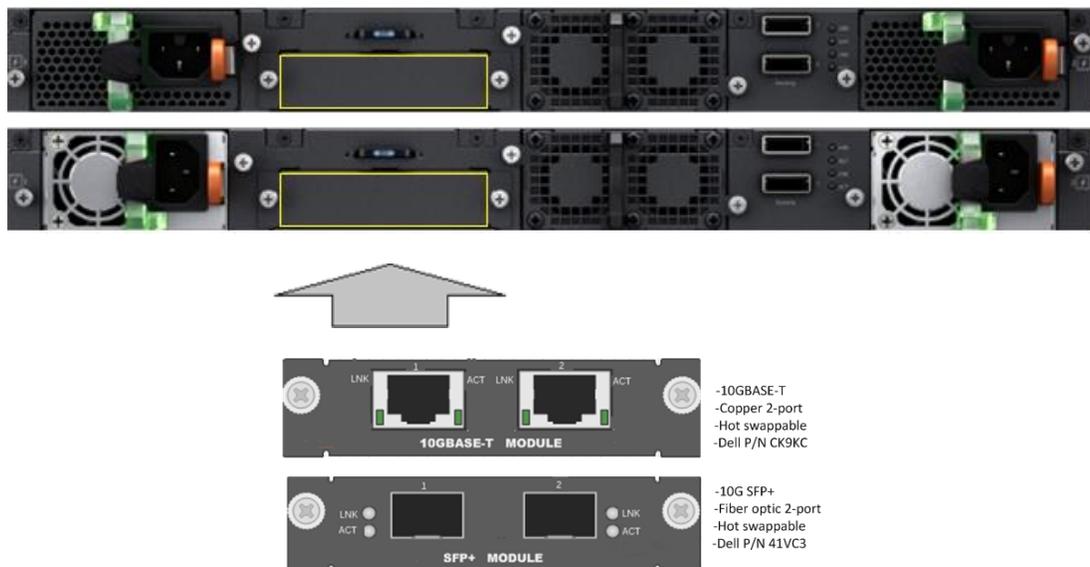


Figure 7 Dell Networking N3000 Series Switch (1G Ethernet) and Available Modules

**Note:** The N2000 series switches (N2024, N2024P, N2048, and N2048P) do not support expansion modules.

## 4.2 Dell Networking N4000 Series (N4032, N4032F, N4064, N4064P)

There are four different switch models in the Dell Networking N4000 series, each with one expansion module located on the front of the chassis. The following modules are supported:

- 4 x 10GBASE-T module
- 4 x SFP+ module
- 2 x 40G QSFP

The modules are hot-swappable, so modules can be installed without rebooting the switch. The yellow outlines in Figure 8 show the expansion slot for each switch.

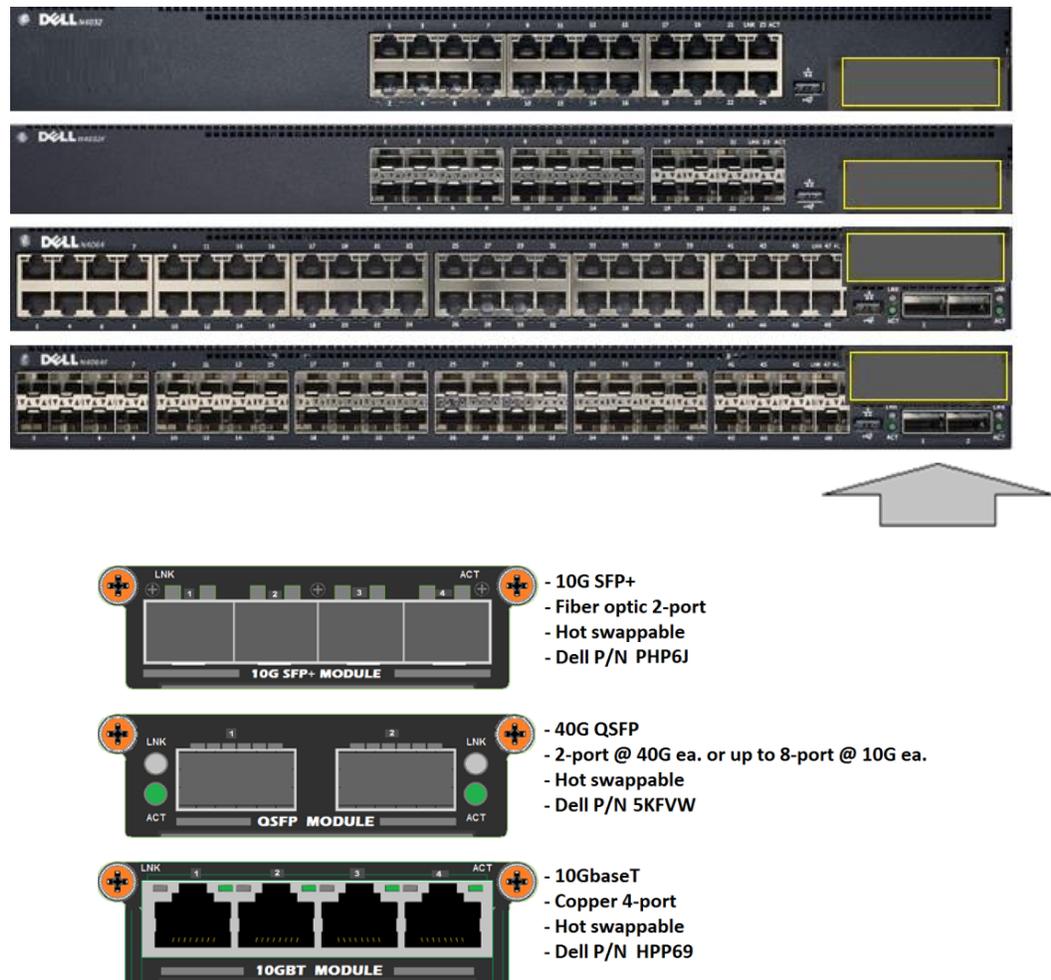


Figure 8 Dell Networking N4000 Series Switch (40/10G Ethernet) and Available Modules

Dell Networking N4000 switches support the same expansion modules as the Dell Networking 81xx and the MXL modular switch.

### 4.3 Dell Networking 8100 Series (8132, 8132F, 8164, and 8164F)

There are four switch models in the Dell Networking 8100 series, each with one bay on the *front* of the switch for an expansion module. The *front view* of the switch is one of the four shown in the figure below. The yellow outline shows the bay on each switch.

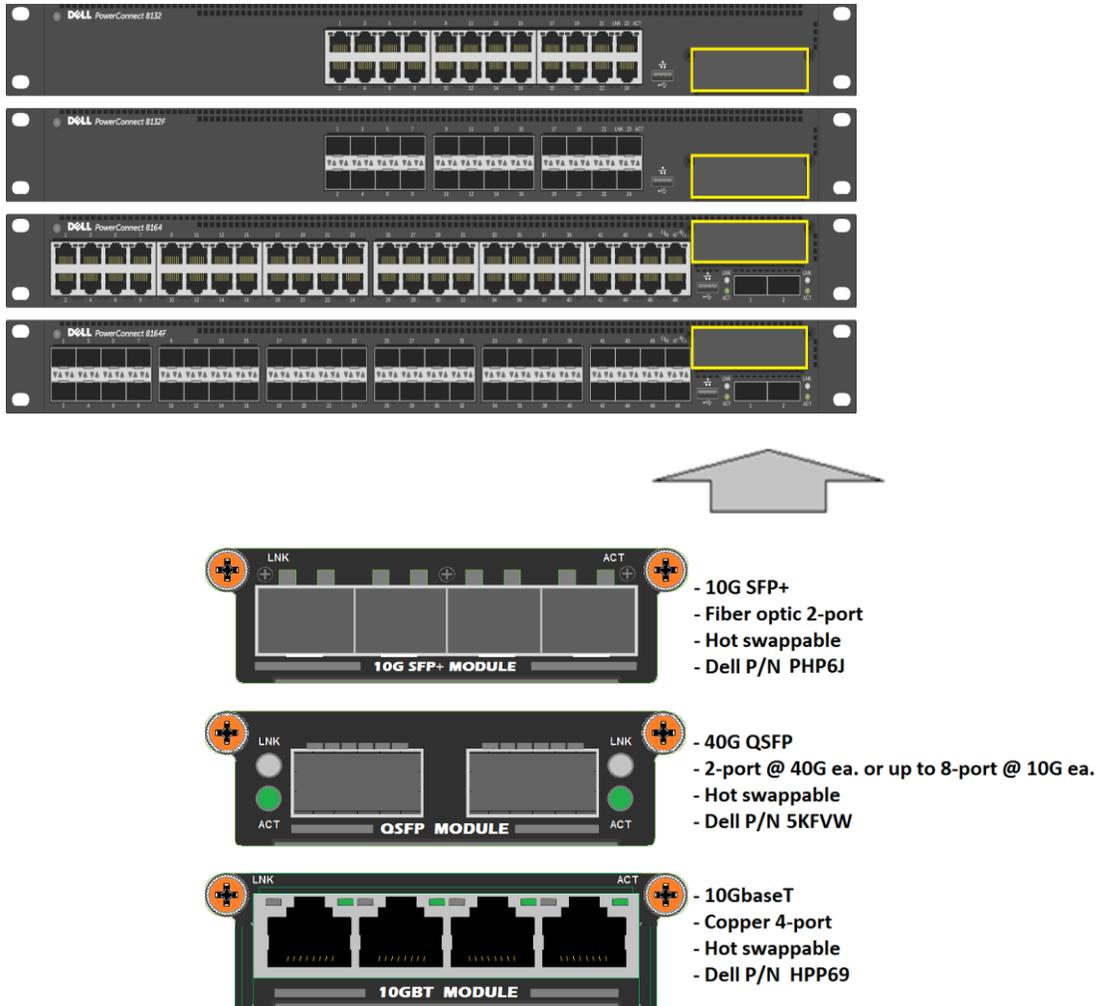


Figure 9 Dell Networking 8100 Series Switch (40/10G Ethernet) and Available Modules

All three modules may be used for stacking the 8100 series switches. Also, any port on the front of an 8100 may be used for stacking. Orange screws on the modules above indicate that they are hot-swappable modules. The Dell Networking 8100 series supports the same expansion modules as the N40xx and Dell Networking MXL. Whenever a module is moved from an N40xx/MXL to an 8100 or vice versa, a reload of the switch is required for proper functioning of the module.

## 4.4 Dell Networking 7000 Series (7024, 7024P, 7024F, 7048, 7048P, 7048R, and 7048R-RA)

There are seven different switch models in the Dell Networking 7000 series, each with two bays for expansion modules. Depending on the model, the rear view of the switch is one of the three shown in Figure 10. The yellow outlines show the two bays.

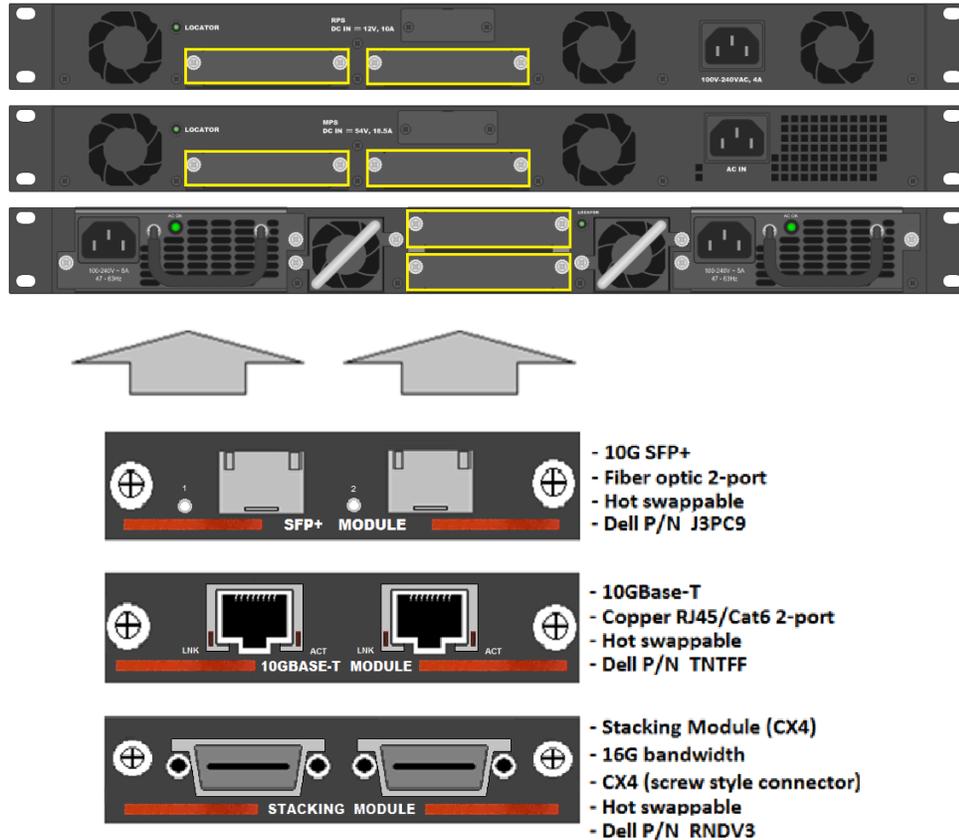


Figure 10 Dell Networking 7000 Series Switch (1G Ethernet) and Available Modules

Red lines on these Dell Networking modules indicate that they are hot-swappable modules. The CX4 Stacking Module for the 7000 series is not capable of changing roles (to Ethernet) as is true for CX4 modules for the 62xx/M62xx. These stacking modules are only used for stacking.

## 4.5 Dell Networking 62xx Series (6224, 6224P, 6224F, 6248, 6248P)

There are five switch models in the Dell Networking 62xx series, each with two bays for expansion modules. The rear view of the switch looks similar to the one shown in Figure 11. The yellow outlines show the two available bays.

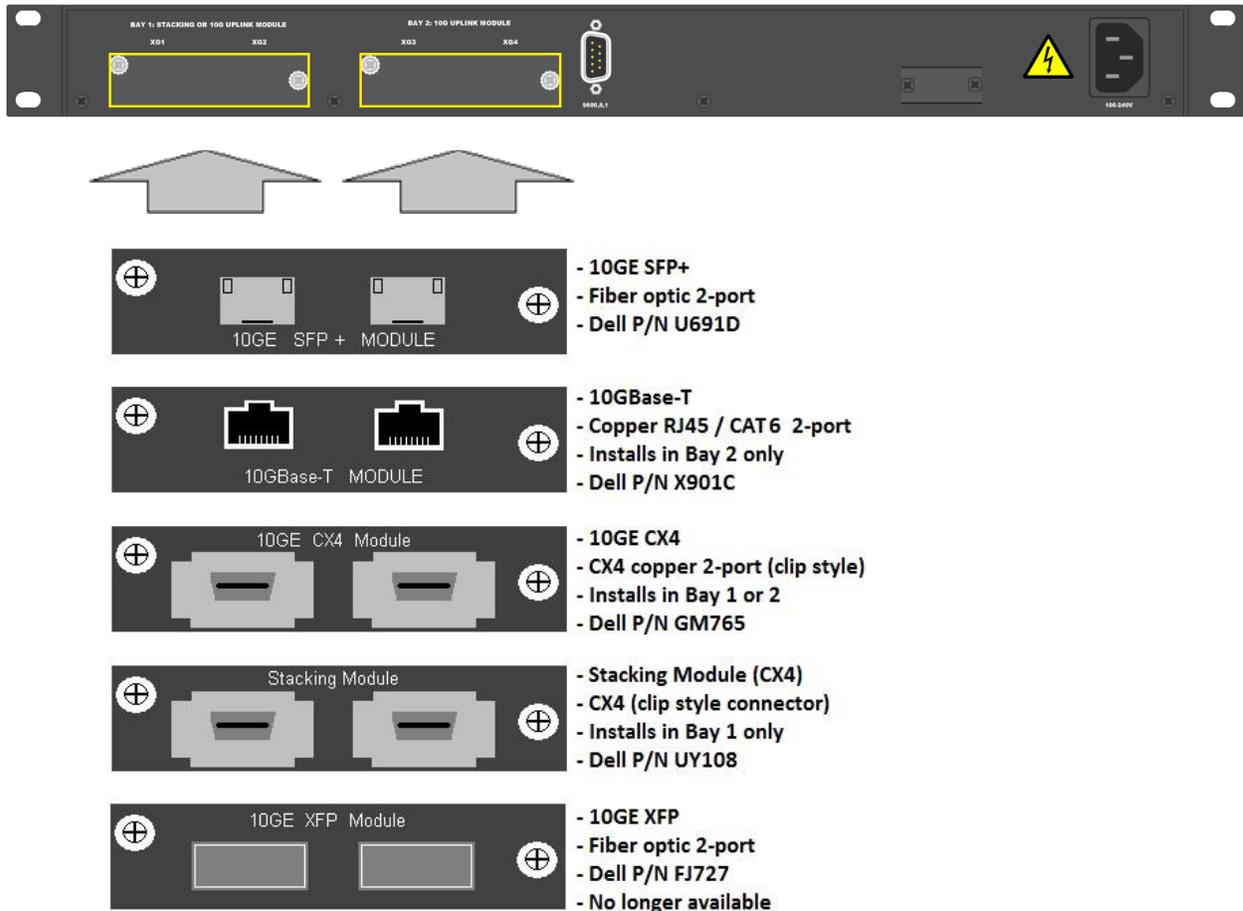


Figure 11 Dell Networking 62xx Series Switch (1G Ethernet) and Available Modules

Dell Networking 62xx switches support the same expansion modules as the Dell Networking M6220 modular switch. The stacking module only installs into Bay 1 (left bay when viewing from the back). The 10GBase-T module only installs into Bay 2 (right bay when viewing from the back).

### Interchangeability of 10GE CX4 and Stacking Modules

Stacking modules and 10GE CX4 modules for this switch can be configured for either role (Ethernet or Stacking). By default, each module functions according to its *Configured Stack Mode* from the factory, which is printed on the face of the module. The *Configured Stack Mode* can also be displayed using the `show stack-port` command and can be changed using the `stack-port` command. Upon changing the role of a module, a reboot is required for the change to take effect. See the [62xx User's Configuration Guide](#) for additional details on how to change roles.

# Support and Feedback

## Contacting Technical Support

Support Contact Information

Web: <http://Support.Dell.com/>

Telephone: USA: 1-800-945-3355

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