Expansion Modules for Dell™ PowerConnect™ and Dell Force10 Switches

A Dell technical white paper

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Introduction

Dell™ offers several blade and rack-mounted switches that allow users to upgrade the hardware by installing *expansion modules*. Thanks to Dell'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. This document identifies each Dell PowerConnect switch and its corresponding set of expansion modules.

The document is divided into two main areas: *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.

When possible, Dell allows for a module to be used in multiple devices. Customers who have purchased a module for one device can freely move that module to another device when supported. There are three groups of switches described in this document that can use the same modules interchangeably within its group:

- PowerConnect M6220, 6224, 6224P, 6224F, 6248, and 6248P support the same expansion modules.
- PowerConnect M8024 and M8024-k support the same expansion modules.
- PowerConnect 7024, 7024P, 7024F, 7048, 7048P 7048R, and 7048R-RA support the same expansion modules.

Unless noted, when two bays are available on a device, same type 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 PowerConnect devices. Listed below are all possible configurations:

- 1 slot/bay available: empty
- 1 slot/bay available: installed
- 2 slots/bays available: empty / empty
- 2 slots/bays available: installed / empty
- 2 slots/bays available: empty / installed
- 2 slots/bays available: installed / installed

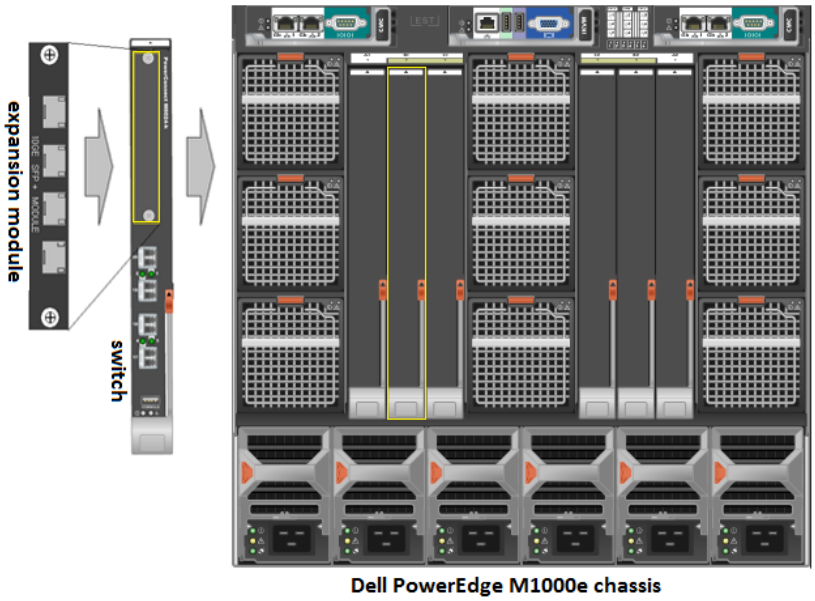
NOTE: In the last bullet above, any two modules may be installed, whether they are the same or different types, unless noted in the module description (for example, the stacking modules for the 62xx and M6220 can only be installed in bay 1).

There are several CX4 expansion modules available for PowerConnect switches. Each CX4 module listed below shows whether it has a clip-style or screw-style connector. Regardless of the type of connection required, Dell 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.

Blade Switches and Corresponding Modules

The Dell PowerEdge M1000e blade chassis has six slots in the rear that allow for a number of Dell PowerConnect 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.

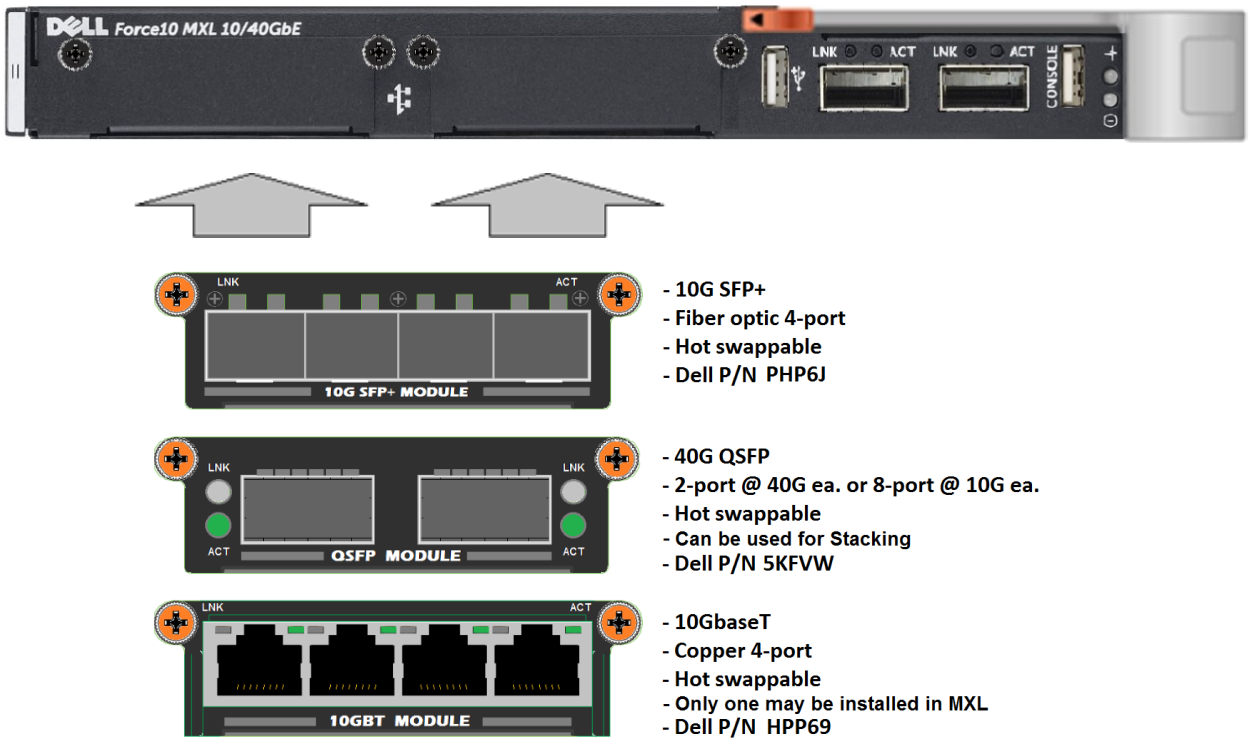
Figure 1. Example of an Expansion Module for Blade Switch



This section identifies each type of blade switch for the M1000e and corresponding expansion modules and 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 part numbers for identification.

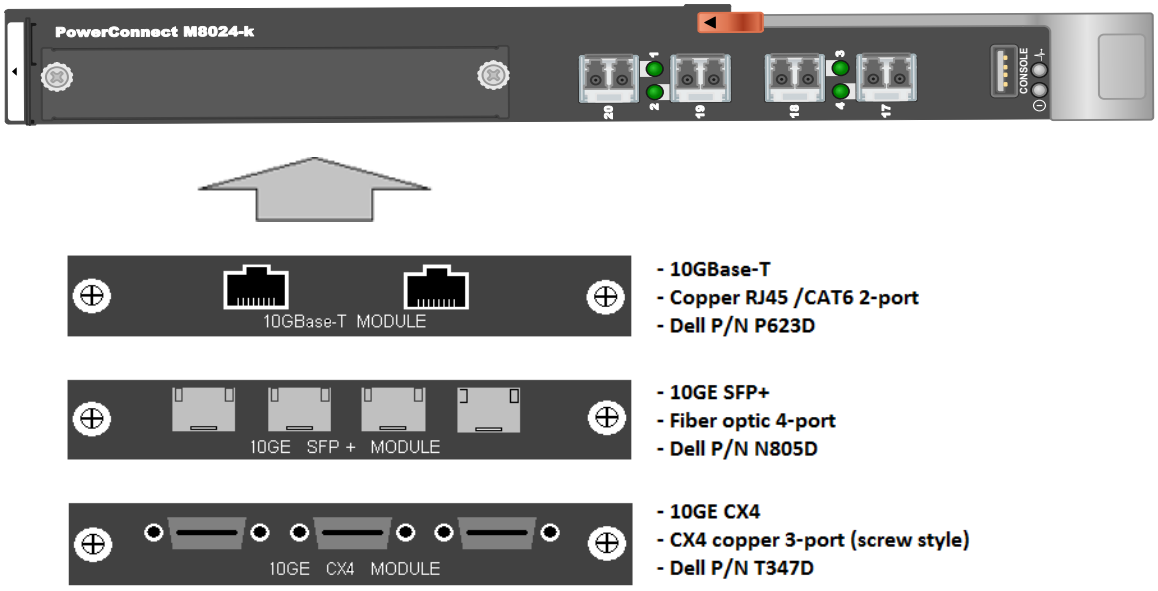
Dell Force 10 MXL

Figure 2. Dell Force 10 MXL Blade Switch (10/40G Ethernet) and Available Modules



Dell PowerConnect M8024-k

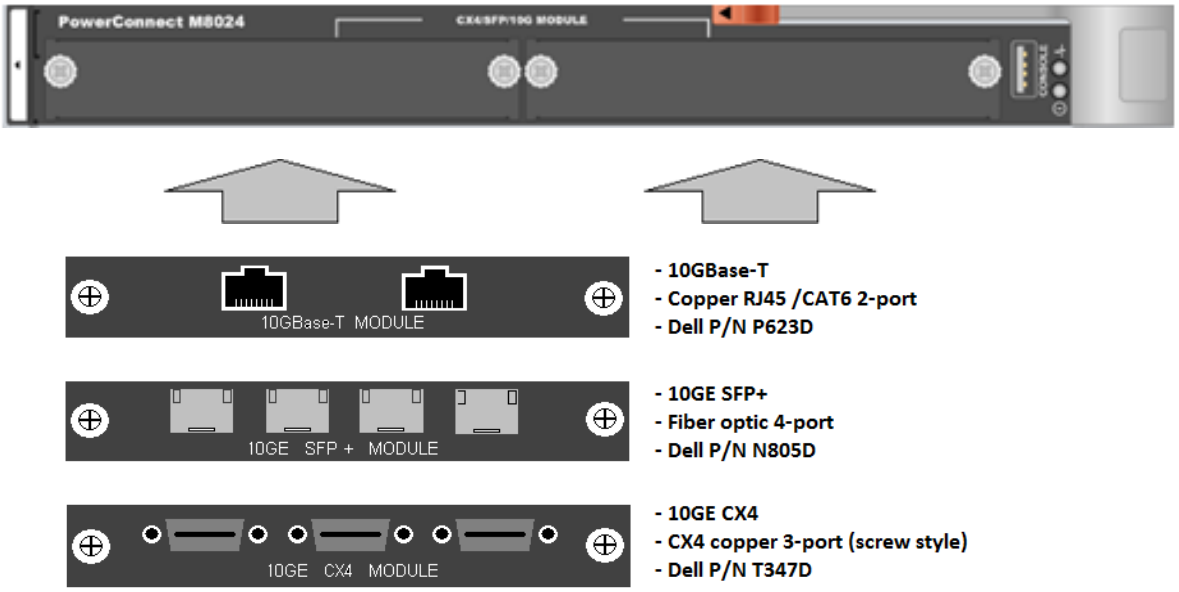
Figure 3. Dell PowerConnect M8024-k Blade Switch (10G Ethernet) and Available Modules



The PowerConnect M8024 and M8024-k switches support the same expansion modules.

Dell PowerConnect M8024

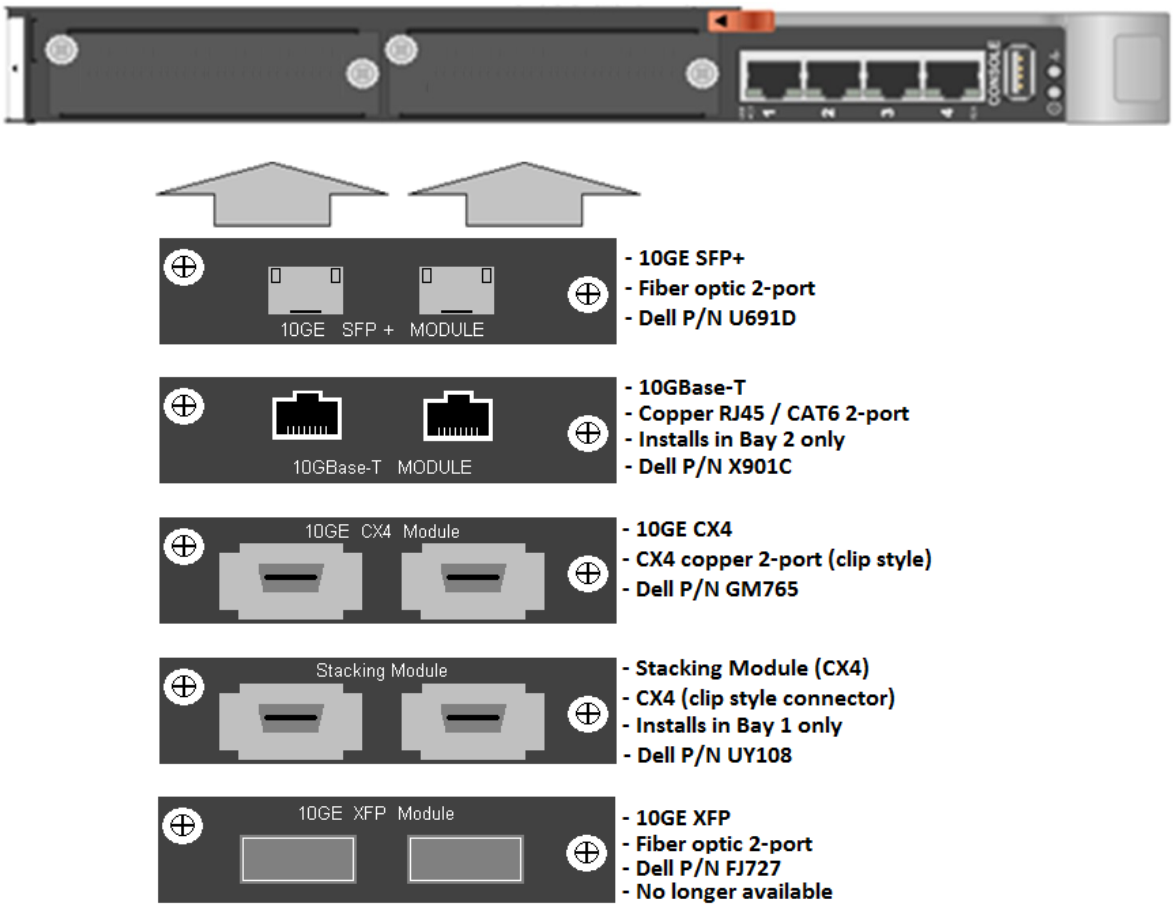
Figure 4. Dell PowerConnect M8024 Blade Switch (10G Ethernet) and Available Modules



The PowerConnect M8024 and M8024-k switches support the same expansion modules. All three modules will install into either bay on the M8024.

Dell PowerConnect M6220

Figure 5. Dell PowerConnect M6220 Blade Switch (1G Ethernet) and Available Modules



The PowerConnect M6220 supports the same expansion modules as the PowerConnect 6224, 6224P, 6224F, 6248, and 6248P.

The Stacking module will only install in Bay 1 (left bay). The 10GBase-T module will only install in Bay 2 (right bay).

Both the Stacking module and 10GE CX4 module can be configured to either role (Ethernet or Stacking). By default, each module functions according to its module ID. Upon changing the role of a module, a reboot is required for the change to take effect. Consult the 62xx *Command Line Interface Guide* (http://support.dell.com/support/edocs/network/PC62xx/en/index.htm) for instructions on how to change roles.

Dell PowerConnect M6348

Figure 6. Dell PowerConnect M6348 Blade Switch (1G Ethernet)

The PowerConnect M6348 has no expansion slots available; therefore it does not support any modules. However, it does have 48 ports (20 external ports) integrated into the switch.

Rack Switches and Corresponding Modules

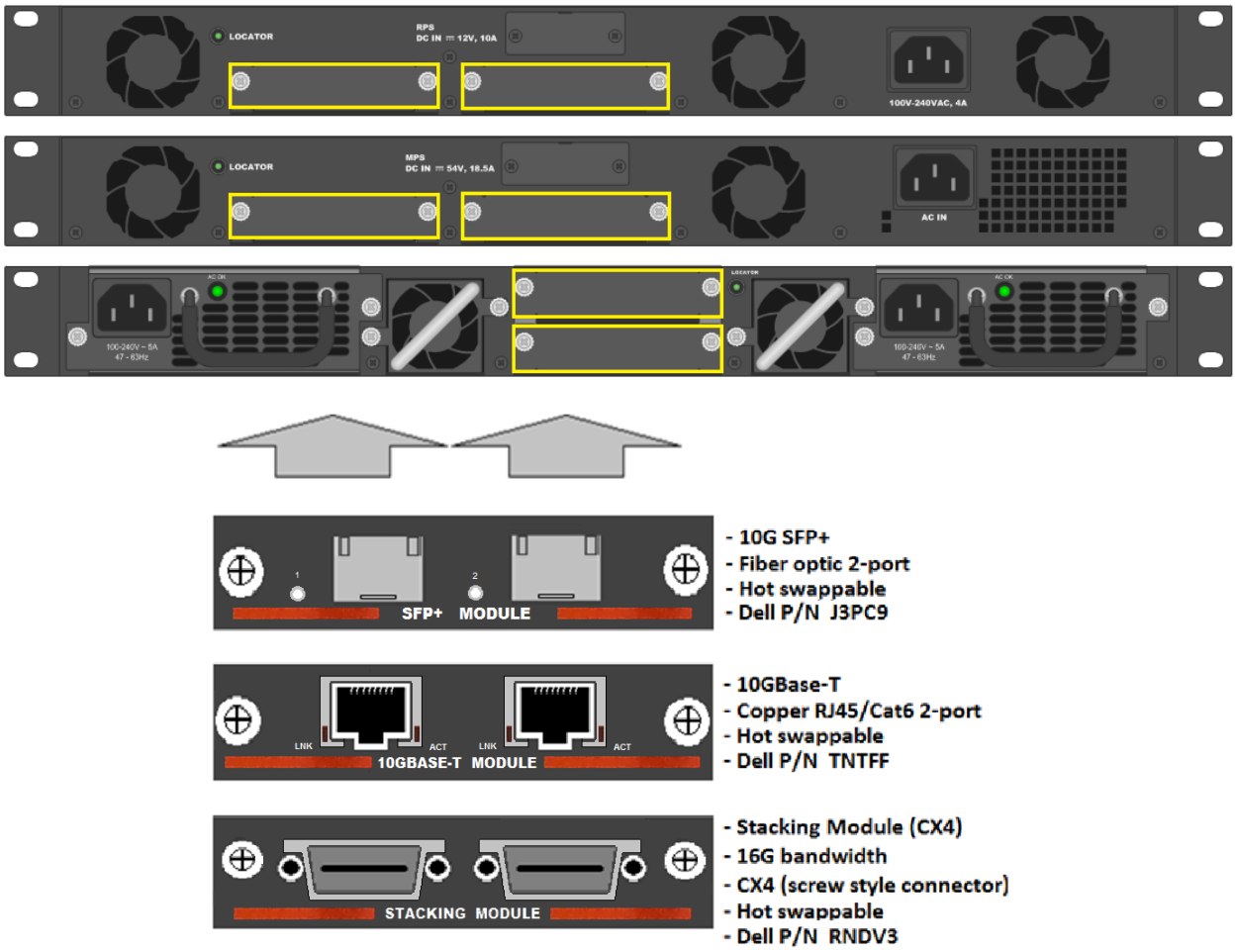
This section identifies each PowerConnect rack-mounted switch that supports expansion modules, lists each corresponding expansion module, and provides a brief overview of each to help identify the right module for its purpose.

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

Dell PowerConnect 7000 Series (7024, 7024P, 7024F, 7048, 7048P, 7048R, and 7048R-RA)

There are seven different switch models in the Dell PowerConnect 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 7. The yellow outlines show the two bays.

Figure 7. Dell PowerConnect 7000 Series Switch (1G Ethernet) and Available Modules



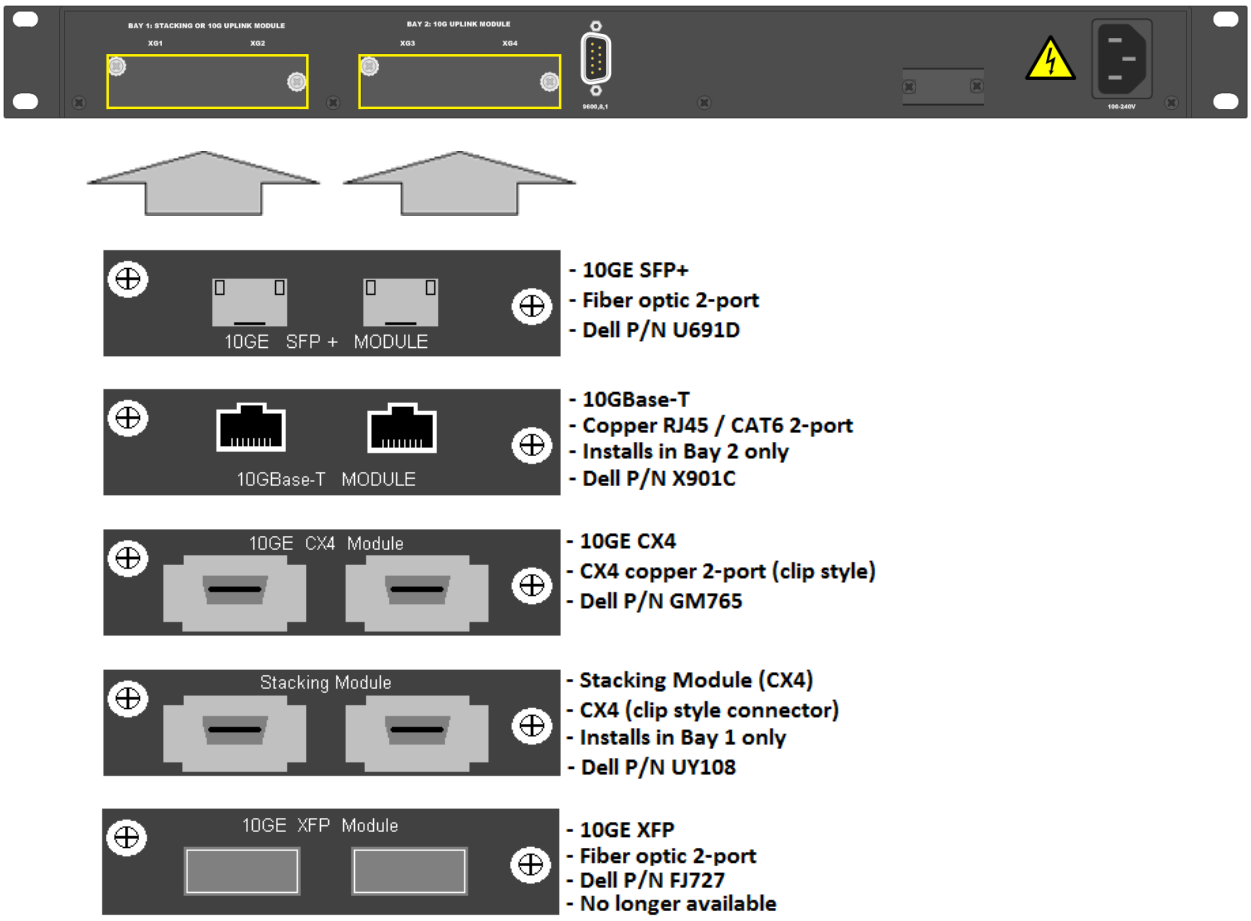
Red/orange lines on these PowerConnect modules indicate that they are hot-swappable modules.

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.

Dell PowerConnect 62xx Series (6224, 6224P, 6224F, 6248, 6248P)

There are five different switch models in the Dell PowerConnect 62xx series, each with two bays for expansion modules. The rear view of the switch looks similar to the one shown in Figure 8. The yellow outlines show the two bays on the left end of the switch.

Figure 8. Dell PowerConnect 62xx Series Switch (1G Ethernet) and Available Modules



PowerConnect 6224, 6224P, 6224F, 6248, and 6248P support the same expansion modules as the PowerConnect M6220 modular switch.

The Stacking module will only install into Bay 1 (left bay when viewing from the back). The 10GBase-T module will only install into Bay 2 (right bay when viewing from the back).

Both the Stacking module and 10GE CX4 module can be configured to either role (Ethernet or Stacking). By default, each module functions according to its module ID. Upon changing the role of a module, a reboot is required for the change to take effect. Consult the 62xx *Command Line Interface Guide* (http://support.dell.com/support/edocs/network/PC62xx/en/index.htm) for instructions on how to change roles.

For more information on Dell PowerConnect products and features, visit www.dell.com/powerconnect.

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