



CHAPTER 1

Product Overview

This chapter provides a functional overview of the Cisco Catalyst Blade Switch 3120 for HP, referred to as the *switch module*. The switch module is installed in the HP c-Class BladeSystem enclosure, referred to as the *blade enclosure*.

You can connect the uplink ports to other devices such as switches, routers, Cisco Wireless Access Point workstations, Cisco IP phones, or other networking equipment. You can also connect standalone servers or PCs to those ports.

These topics are included:

- [Switch Module Features Overview, page 1-1](#)
- [Other Features, page 1-3](#)
- [Management Options, page 1-8](#)

Switch Module Features Overview

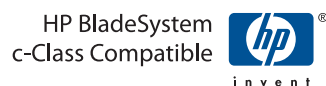
The Cisco Catalyst Blade Switch 3120 for HP is a stackable, Layer 3 switch module. The number of ports depends on which modules are installed. See the release notes and the software configuration guide for information about which Layer 3 features are supported. See the [“Planning and Creating a Switch Stack” section on page 2-13](#) for information about stacking the switch.

The Cisco Catalyst Blade Switch 3120 for HP includes a 3120G (CB3120X) and a 3120X (CBS3120X) model. Both are stacking-capable. The initial setup procedure for both models is the same.

Note on WS-CBS3125G-S and WS-CBS3125X-S switch models:

- The WS-CBS3125G-S is the same product as the WS-CBS3120G-S.
- The WS-CBS3125X-S is the same product as the WS-CBS3120X-S.

The functionality and the performance of WS-CBS3125 switches are same as those of WS-CBS3120 switches. All Cisco Catalyst Blade Switch 3120/3125 for HP models are HP BladeSystem c-Class compatible.



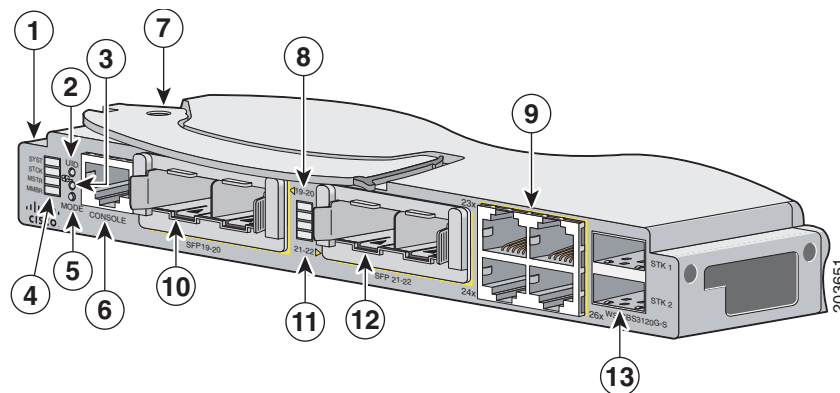
The CBS3120X switch module supports both the Cisco X2 transceiver modules and the Cisco TwinGig Converter Module. The CBS3120G switch module supports only the Cisco TwinGig Converter Module. See the “10-Gigabit Ethernet Module Slots” section on page 1-4 for more information.

For more information about the features of each model, see the hardware installation guide and the software configuration guide for the switch module. See the release notes and the software configuration guide for information about supported Layer 3 features.

See Table 1-1 for more detailed descriptions of the switch module ports.

Figure 1-1 shows the Cisco Catalyst Blade Switch 3120 for HP switch module.

Figure 1-1 The Catalyst Blade Switch 3120 for HP



1	Switch module	8	LEDs for ports 19 and 20 or for the Gigabit-Ethernet slot 1
2	UID ¹ LED	9	Gigabit Ethernet uplink ports 23 to 26 and port LEDs
3	Health LEDs	10	Gigabit Ethernet ports 19 and 20 or 10-Gigabit Ethernet slot 1
4	System LEDs ²	11	LEDs for ports 21 and 22 and for the 10-Gigabit Ethernet slot 2
5	Mode button	12	Gigabit Ethernet ports 21 and 22 or 10-Gigabit Ethernet slot 2
6	Console port	13	StackWise Plus ports
7	Release latch		

1. UID= unit identifier.

2. SYST, STCK, MSTR, MMBR.

Table 1-1 describes the Cisco Catalyst Blade Switch 3120 for HP ports. Each external port has an associated LED.

Table 1-1 Cisco Catalyst Blade Switch 3120 for HP Port Descriptions

Port	Description
Ports 1 to 16	Internal Gigabit Ethernet 1000BASE-X downlink ports that connect to the blade enclosure.
Ports 17 to 18	Internal cross-connection ports that you can use to connect to a second switch in the blade enclosure through a backplane connector. You can configure these ports by using the Cisco IOS CLI ¹ . However, if the blade switches are stacked, these ports are disabled.

Table 1-1 Cisco Catalyst Blade Switch 3120 for HP Port Descriptions (continued)

Port	Description
Ports 19 to 22	10-Gigabit Ethernet module slots for use with the Cisco TwinGig Converter Modules and Cisco X2 transceiver modules.
Ports 23 to 26	External 10/100/1000BASE-T copper Gigabit Ethernet uplink ports that support auto-MDIX and autonegotiation.
Internal 100BASE-T Ethernet port	The Ethernet management port (Fa0) is used only for switch module management traffic, not for data traffic. It is connected to the Onboard Administrator through the blade enclosure backplane connector. Traffic to and from this port is isolated from the switch ports. This port only supports autonegotiation with 100 Mb/s and full-duplex mode.
StackWise Plus ports	Stacking cable ports.
Console port	Switch module management port (RJ-45 connector).

1. CLI: command-line interface.

The switch module is powered from the blade enclosure backplane, and temperature management is provided by the blade enclosure. There is no fan on the switch module.

See the software configuration guide for examples showing how you might deploy the switch module in your network.

Other Features

These sections describe other switch module features:

- [Switch Module Console Port, page 1-3](#)
- [10/100/1000 Ports, page 1-4](#)
- [10-Gigabit Ethernet Module Slots, page 1-4](#)
- [LEDs, page 1-5](#)
- [StackWise Plus Ports, page 1-8](#)
- [Power Connectors, page 1-8](#)

Switch Module Console Port

You can connect the switch module through its console port to a PC by using the RJ-45-to-DB9 female cable that ships with the product. If you need a spare cable, you can order a kit (part number ACS-DSBUASYN=) directly from Cisco. If you want to attach the switch module to any other device, such as a terminal server, you might need a different cable. For console port and adapter pinout information, see the [“Connector and Cable Specifications” section on page B-1](#).

10/100/1000 Ports

The 10/100/1000 Ethernet ports use standard RJ-45 connectors with Ethernet pinouts. The maximum cable length is 328 feet (100 meters). The 100BASE-TX and 1000BASE-T traffic requires Category 5, Category 5e, or Category 6 unshielded twisted pair (UTP) cable. The 10BASE-T traffic can use Category 3 or Category 4 UTP cable.

For more information about the 10/100/1000 Ethernet port connections and specifications, see the [Connecting to the 10/100/1000 Ports, page 2-22](#), and [Appendix B, “Connector and Cable Specifications.”](#)

10-Gigabit Ethernet Module Slots

The 10-Gigabit Ethernet module slots are used for uplink connections to other switches and routers. The module slots operate in full-duplex mode. The CBS3120X uses the hot-swappable Cisco X2 transceiver modules and the Cisco TwinGig Converter Module. The CBS3120G uses only the Cisco TwinGig Converter Module.

These X2 transceiver modules are supported on the CBS3120X switch module:

- CX4
- LX4
- SR
- LRM

For the latest information about the supported X2 transceiver modules, see the switch release notes on Cisco.com at this location:

http://www.cisco.com/en/US/products/ps6748/tsd_products_support_series_home.html

For more information about the 10-Gigabit Ethernet module slots, see the [“Installing Devices in the 10-Gigabit Ethernet Slots” section on page 2-17](#). For cable specifications, see [Appendix B, “Connector and Cable Specifications.”](#)

Cisco TwinGig Converter Module

The Cisco TwinGig Converter Module (model CVR-X2-SFP), also known as the *converter module*, has two small form-factor pluggable (SFP) module slots that convert the 10-Gigabit slot into a dual SFP module interface to establish Gigabit uplinks to network devices. The SFP modules have LC connectors for fiber-optic connections or RJ-45 connectors for copper connections. These SFP modules are supported:

- 1000BASE-SX
- 1000BASE-T

For more information about the SFP modules, refer to your SFP module documentation. For the latest information about the supported SFP transceiver modules, see the switch release notes on Cisco.com at this location:

http://www.cisco.com/en/US/products/ps6748/tsd_products_support_series_home.html

For more information about the Cisco TwinGig Converter Module, see the [“Installing X2 Transceiver Modules and Cisco Converter Modules” section on page 2-18](#). For cable specifications, see [Appendix B, “Connector and Cable Specifications.”](#)

LEDs

You can use the switch LEDs to monitor switch module activity and performance. Graphical representations of the LEDs described in these sections are visible in the device manager.

- [System LED, page 1-5](#)
- [Stack LED, page 1-5](#)
- [Stack Master LED, page 1-6](#)
- [Stack Member LED, page 1-6](#)
- [UID and Health LEDs, page 1-6](#)
- [RJ-45 Uplink Port LEDs, page 1-6](#)



Note

The System LED (SYST), stack LED (STCK), Stack Master LED (MSTR), and Stack Member LED (MMBR) are shown as item 4 in [Figure 1-1 on page 1-2](#).

System LED

The System LED (SYST) shows whether the system is receiving power and is functioning properly. [Table 1-2](#) lists the LED colors and their meanings.

Table 1-2 System LED

Color	System Status
Off	System is not powered on.
Blinking green	POST is in progress.
Solid green	System is operating normally.
Amber	System is receiving power but is not functioning properly.

Stack LED

To see the status of the StackWise Plus ports, press the Mode button. The Stack LED (STCK) is green when the StackWise Plus ports are up and amber when the ports are down. The bottom two 10-Gigabit Ethernet module slot LEDs show the status for StackWise Plus ports 1 and 2, respectively (see item 11 in [Figure 1-1 on page 1-2](#)).

When in stack mode, if both 10-Gigabit Ethernet uplink port LEDs are green, the stack is operating at full bandwidth. If one or both of the 10-Gigabit uplink LEDs are not green, the stack is not operating at full bandwidth.

See the “[LED Behavior in Stack Mode](#)” section on [page 1-8](#) for more information.

Stack Master LED

The Stack Master LED (MSTR) shows the stack master status. [Table 1-3](#) lists the LED colors and their meanings.

Table 1-3 *Stack Master LED*

Color	Description
Off	Switch is not the stack master.
Green	Switch is the stack master or a standalone switch.
Amber	An error occurred during stack master election or another type of stack error occurred.

Stack Member LED

The Stack Member LED (MMBR) shows the switch stack membership number, which ranges from 1 to 9. The Stack Member LED blinks a number of times equal to the membership number of the switch, pauses, and then repeats the process until you turn off stack mode or until stack mode times out.

[Table 1-4](#) lists the LED colors and their meanings when stack mode is on. When stack mode is off, the Member LED is off.

Table 1-4 *Member LED With Stack Mode On*

Color	Description
Off	Pause between blinking stack membership number. Duration is 5 seconds. After pause, LED changes to blinking green.
Blinking green	A total of n on-off cycles with n = switch stack membership number in range 1 to 9. After n on-off cycles, blinking stops, and LED turns off.

UID and Health LEDs

The UID and Health LEDs are controlled by the blade enclosure software (Onboard Administrator). The UID LED is on when the switch module is identified by the blade enclosure. The Health LED is green during normal operation; it is amber when a failure is detected.

RJ-45 Uplink Port LEDs

The external 10/100/1000BASE-T copper Gigabit Ethernet uplink port LEDs display link and activity information about each individual port. These LEDs are on the top left and right, respectively, of each RJ-45 port (see item 9 in [Figure 1-1 on page 1-2](#)). [Table 1-5](#) describes the port link LED colors and their meanings.

Table 1-5 *Meaning of Port Link LED Colors*

LED Color	Meaning
Off	No link established.
Solid green	Link established, no activity.
Blinking green	Traffic on an established link.

Table 1-5 *Meaning of Port Link LED Colors*

LED Color	Meaning
Amber	Port disabled, either error or STP ¹ disabled.
Alternating Green/Amber	Link fault.

1. STP: Spanning Tree Protocol.

The port activity LED blinks green to indicate traffic.

10-Gigabit Ethernet Module Slot Port LEDs

The behavior of the 10-Gigabit Ethernet module slot port LEDs depends on whether an X2 module or a converter module is installed and whether you pressed the Mode button to place the switch module in stack mode.

X2 Module Installed (Only the CBS3120X Switch)

The 10-Gigabit Ethernet module slot LEDs 19 to 22 show the status for ports 19 to 20 and 21 to 22, respectively (see items 8 and 11 in [Figure 1-1 on page 1-2](#)). When an X2 module is installed, each pair of LEDs behaves as one. The top pair of LEDs represents the left X2 module in slot 19 to 20, and the bottom pair of LEDs represents the right X2 module in slot 21 to 22.

[Table 1-6](#) describes the 10-Gigabit Ethernet slot port LED colors and their meanings.

Table 1-6 *Meaning of 10-Gigabit Ethernet Module Slot LED Colors*

LED Color	Meaning
Off	No link established.
Solid green	Link established, no activity.
Blinking green	Activity (traffic) on an established link.
Amber	Port disabled, either error or STP disabled.
Alternating green/amber	Link fault.

Converter Module Installed

When a converter module is in one of the 10-Gigabit Ethernet module slots, the LEDs show the status of the SFP modules that are in the converter module. If one converter module is installed in slots 19 and 20, and one converter module is installed in slots 20 and 21, this is how the LEDs correspond to the installed SFP modules:

1. The top LED (19) corresponds to the SFP module in slot 19.
2. The second LED (20) corresponds to the SFP module in slot 20.
3. The third LED (21) corresponds to the SFP module in slot 21.
4. The fourth LED (22) corresponds to the SFP module in slot 22.

See [Table 1-6](#) for a description of the 10-Gigabit Ethernet slot port LED colors and their meanings.

LED Behavior in Stack Mode

Whether an X2 module or a converter module is installed in the 10-Gigabit Ethernet module slots, the two bottom LEDs (21 and 22) show the status of the StackWise Plus ports 1 and 2, respectively. The top two LEDs (19 and 20) are off when in stack mode. [Table 1-7](#) describes the LED colors in stack mode and their meanings.

Table 1-7 *Meaning of Port 21 and 22 LED Colors in Stack Mode*

LED Color	Meaning
Solid green	Stack port is connected. If both LEDs are green, the stack is running at full speed.
Amber	Stack port is not connected.

StackWise Plus Ports

The switch module ships with a 1-meter StackWise cable that you can use to connect the StackWise Plus ports.



Caution

Use only approved cables, and connect only to similar Cisco equipment. Equipment might be damaged if connected to nonapproved Cisco cables or equipment.

You can order these StackWise Plus cables from your Cisco sales representative:

- CAB-STK-E-0.5M= (0.5-meter cable)
- CAB-STK-E-1M= (1-meter cable)
- CAB-STK-E-3M= (3-meter cable)

Power Connectors

The blade enclosure controls power to the switch module. After the blade enclosure detects the presence of the switch module, it moves the switch module to the full power state. The switch module software is not involved in power control functions.

Management Options

This section describes management options for the switch module:

- [Using the Device Manager, page 1-9](#)
- [Using the Command-Line Interface, page 1-10](#)
- [Other Management Options, page 1-10](#)
- [Using the Onboard Administrator CLI and GUI, page 1-10](#)
- [Network Configurations, page 1-10](#)

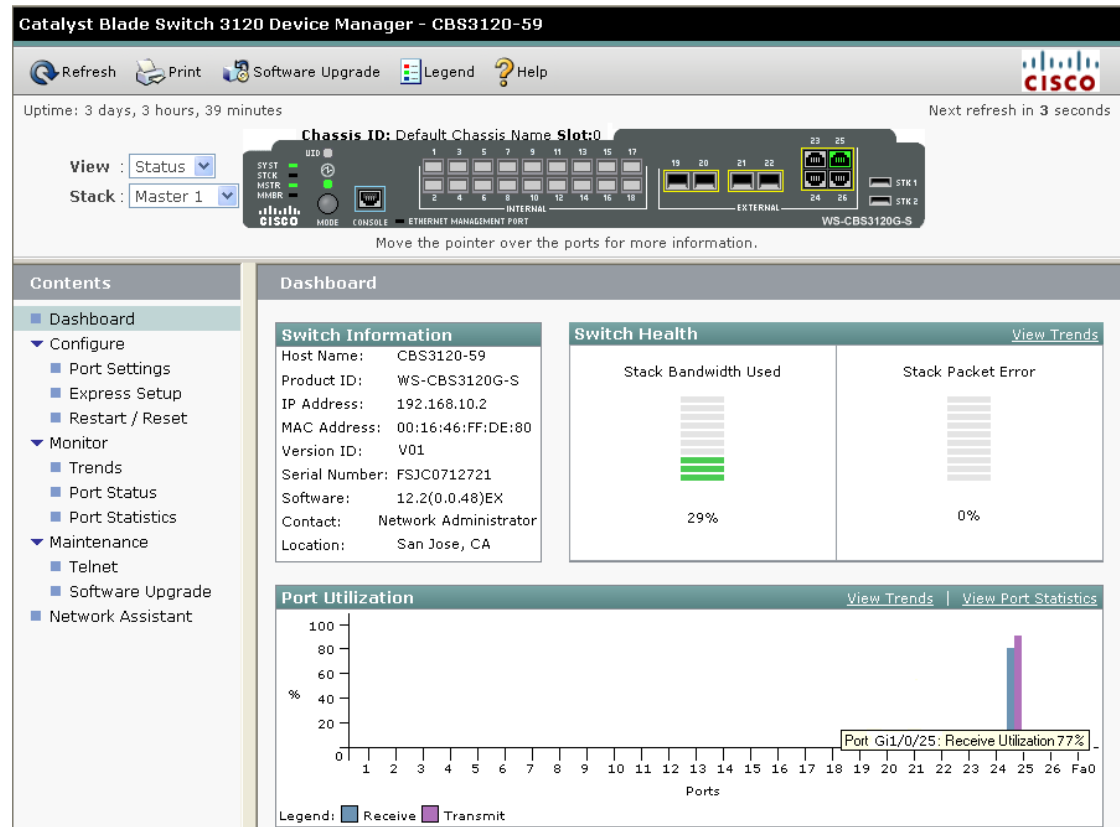
Using the Device Manager

The simplest way to manage the switch module is by using the device manager that is in the switch module memory. This is a web interface that offers quick configuration and monitoring. You can access the device manager from anywhere in your network through a web browser.

Follow these steps:

1. Launch a web browser on your PC or workstation.
2. Enter the switch module IP address in the web browser, and press **Enter**. The device manager page appears. (See Figure 1-2.)

Figure 1-2 Device Manager Page



3. Use the device manager to perform basic switch module configuration and monitoring. Refer to the device manager online help for more information.
4. For more advanced configuration, download and run the Cisco Network Assistant, which is described in the next section.

Using the Command-Line Interface

The switch module CLI is based on Cisco IOS software and enhanced to support desktop-switching features. You can fully configure and monitor the switch module from the CLI. You can access the CLI either by connecting your management station directly to the switch module console port or by using Telnet from a remote management station. Refer to the switch module command reference on Cisco.com for more information.

For quick setup instructions that use the CLI, go to [Appendix C, “Configuring the Switch with the CLI-Based Setup Program.”](#)

Using the Onboard Administrator CLI and GUI

See the HP BladeSystem enclosure setup and installation guide at <http://www.hp.com/go/bladeSystem/documentation> for information on how to use the Onboard Administrator CLI and GUI.

Other Management Options

You can use SNMP management applications such as CiscoWorks Small Network Management Solution (SNMS) to configure and manage the switch module. You also can manage it from an SNMP-compatible workstation that is running platforms such as HP OpenView or SunNet Manager.

Network Configurations

Refer to the switch module software configuration guide on Cisco.com for an explanation of network configuration concepts. The software configuration guide also provides examples of network configurations that use the switch module to create dedicated network segments that are interconnected through Gigabit Ethernet connections.