

## Cisco Catalyst Blade Switch 3120 for HP

The Cisco Catalyst<sup>®</sup> Blade Switch 3120 for HP represents the next-generation I/O solution for blade server environments. Built from the ground up on the purpose-built Cisco<sup>®</sup> hardware and market-leading Cisco IOS<sup>®</sup> Software, the Cisco Catalyst Blade Switch 3120 (Figure 1) is engineered with innovative technologies specifically designed to meet the rigors of blade server-based application infrastructure. Specifically, the switch is designed to deliver scaleable, high-performance, highly resilient blade server connectivity while supporting ongoing IT initiatives to reduce server infrastructure complexity and total cost of ownership (TCO).

**Figure 1.** Cisco Catalyst Blade Switch 3120 for HP



### Configurations

The Cisco Catalyst Blade Switch 3120 for HP has two configurations and SKUs.

#### Configuration 1: Cisco Catalyst Blade Switch 3120G for HP

- 8 Gigabit Ethernet uplink ports: 4 10/100/1000BASE-T ports and 4 Small Form-Factor Pluggable (SFP) Gigabit Ethernet ports

#### Configuration 2: Cisco Catalyst Blade Switch 3120X for HP

- 4 10/100/1000BASE-T ports and 2 X2-based 10 Gigabit Ethernet ports
- The Cisco TwinGig Converter Module can be used in place of X2 modules. The Cisco TwinGig module converts a single 10 Gigabit Ethernet X2 interface into two Gigabit Ethernet SFP ports.

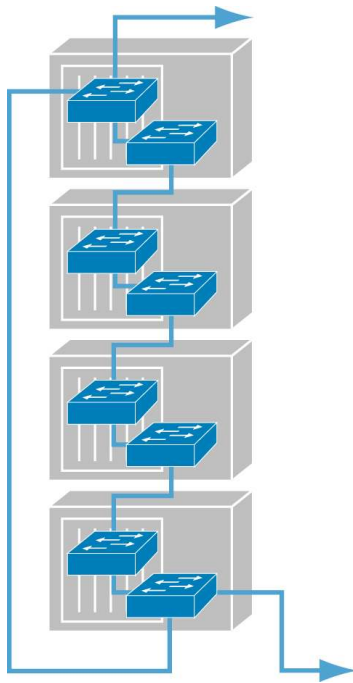
### Virtual Blade Switch (VBS) Technology

With the Cisco Catalyst Blade Switch 3120, Cisco introduces a unique technology called the virtual blade switch (VBS). This switch virtualization technology treats the interconnected physical switches within a rack as one logical switch.

#### Main Benefits of VBS Technology

- VBS reduces infrastructure complexity, improves network resiliency, and increases the operational manageability of the blade-switching environment.
- VBS offers exceptional scalability by providing up to 160 Gbps of upstream bandwidth.
- VBS can increase the bandwidth available to a server eightfold.
- Because the VBS appears as a single node, both the Layer 2 and Layer 3 topologies are greatly simplified, increasing fabric stability and reducing convergence times after a topology change.
- The capability to mix-and-match 10 Gigabit Ethernet switches provides customers with a cost-effective migration path. In addition, the advanced operations and troubleshooting tools reduce operating expenses.

**Figure 2.** Switches interconnected in a rack are treated as a single logical switch



Cisco blade switches provide an easy, smart, and flexible blade server I/O solution that allows customers to reap the full benefits offered by the blade server architecture:

- **Easy:** Easy to operate and deploy
  - Because there are fewer switches to manage with VBS technology, helps solve the problem of switch sprawl
  - Provides consistent management interface and tools throughout the Cisco data center and blade switch portfolio, accelerating service provisioning and simplifying troubleshooting
  - Through VBS technology, provides operational transparency and efficiency during replacement and addition of switches
- **Smart:** Feature-rich, “server-smart” networking solution
  - Provides highly resilient LAN uplinks to increase blade server and virtual machine availability using innovations such as trunk failover and EtherChannel
  - Helps secure application servers and virtual machines using private VLANs and access control lists (ACLs)
  - Provides intelligent congestion management mechanisms to optimize network bandwidth using quality of service (QoS)
  - Provides advanced Layer 2 and 3, IPv4 and IPv6, and multicast capabilities to facilitate smart end-to-end server networking in the data center
- **Flexible:** Flexible solution to scale resources and facilitate data center virtualization
  - Through VBS, provides flexibility to configure network topology based on application needs such as performance, scalability, and resiliency
  - Through VBS, provides investment protection and a flexible transition path with the capability to mix and match Gigabit Ethernet and 10 Gigabit Ethernet switches
  - Provides flexible options for configuration and management such as a command-line interface (CLI) and a GUI

## Cisco Catalyst Blade Switch 3120 Software

The Cisco Catalyst Blade Switch 3120 ships with the IP Base feature set. The IP Base feature set includes advanced QoS, a suite of security features, rate-limiting, ACLs, and basic static and Routing Information Protocol (RIP) routing capability.

Customers can upgrade the software to the IP Services feature set. The IP Services feature set provides a richer set of enterprise-class features, including advanced hardware-based IP unicast and multicast routing: Enhanced Interior Gateway Routing Protocol (EIGRP), Open Shortest Path First (OSPF), Border Gateway Protocol (BGP), Protocol Independent Multicast (PIM), and IPv6 routing.

### Features and Benefits

Table 1 summarizes product features and benefits.

**Table 1.** Features and Benefits

Features	Benefits
<b>Ease of use</b> <ul style="list-style-type: none"> <li>• Capability to virtualize 8 switches into 1</li> <li>• Automatic software version checking</li> <li>• Automatic configuration synchronization</li> <li>• Dynamic Trunking Protocol (DTP)</li> </ul>	<ul style="list-style-type: none"> <li>• Reduces network complexity and simplifies configuration and maintenance</li> <li>• Provides automatic configuration and versioning that enables true immediate availability (plug-and-play) capabilities during scheduled maintenance</li> </ul>
<b>Availability</b> <ul style="list-style-type: none"> <li>• Multiswitch EtherChannel</li> <li>• Trunk failover</li> <li>• FlexLeink</li> <li>• Rapid Spanning Tree Protocol (RTSP)</li> <li>• Multiple Spanning Tree (MST) Protocol</li> </ul>	<ul style="list-style-type: none"> <li>• Increases resiliency and availability during switch failures</li> <li>• Quickly reroutes traffic during uplink failures</li> <li>• Achieves convergence within 100 milliseconds (ms) during link failures</li> <li>• Provides fast convergence to reduce downtime during spanning-tree failures</li> </ul>
<b>QoS</b> <ul style="list-style-type: none"> <li>• Wire-rate QoS performance</li> <li>• Policing and rate limiting</li> <li>• Traffic shaping</li> <li>• Queuing</li> </ul>	<ul style="list-style-type: none"> <li>• Provides industry-leading mechanisms for marking, classification, and scheduling to deliver superior performance for data, voice, and video traffic, all at wire speed</li> <li>• Can prioritize traffic based on application criticality</li> <li>• Can tightly control the amount of traffic a particular server or application can send or receive</li> </ul>
<b>Security</b> <ul style="list-style-type: none"> <li>• Dynamic Address Resolution Protocol (ARP) Inspection (DAI)</li> <li>• Dynamic Host Configuration Protocol (DHCP) snooping</li> <li>• IP source guard</li> <li>• Private VLANs</li> <li>• Unicast Reverse Path Forwarding (URPF)</li> <li>• IEEE 802.1x port-based security</li> <li>• ACLs and VLAN ACLs (VACLs)</li> <li>• Secure Shell (SSH) Protocol</li> <li>• MAC address notification</li> <li>• Port security</li> <li>• Spanning Tree Protocol root guard and Bridge Protocol Data Unit (BPDU) guard</li> </ul>	<ul style="list-style-type: none"> <li>• Provides comprehensive set of security features for connectivity and access control</li> <li>• Defends the network against various smurf, "man-in-the-middle," and denial-of-service (DoS) attacks</li> <li>• Protects against excessive broadcasts and multicasts</li> </ul>
<b>High-performance IP routing</b> <ul style="list-style-type: none"> <li>• RIPv1 and v2, OSPF, EIGRP, and BGPv4</li> <li>• IPV6 RIP Next Generation (RIPng) and OSPFv3</li> <li>• Policy-based routing (PBR)</li> <li>• IP multicast routing (PIM Sparse Mode [SM], Dense Mode [DM], and Sparse-Dense Mode [SDM])</li> </ul>	<ul style="list-style-type: none"> <li>• Provides feature-rich routing options to bring Layer 3 intelligence to the access switches</li> <li>• Helps ensure effective use of bandwidth resources by supporting Layer 3 multicast</li> <li>• Better utilizes network resources through load balancing</li> </ul>

Features	Benefits
<p><b>Manageability</b></p> <ul style="list-style-type: none"> <li>• Single IP address for up to 8 switches</li> <li>• Cisco IOS Software CLI</li> <li>• SPAN and Remote SPAN (RSPAN) support</li> <li>• Layer 2 traceroute</li> <li>• Traffic statistics: Packet and error counters</li> <li>• Simple Network Management Protocol (SNMP) v1, v2, and v3</li> <li>• Remote monitoring (RMON)</li> <li>• Cisco Discovery Protocol</li> <li>• Limited support for Cisco IOS Embedded Event Manager (EEM)</li> </ul>	<ul style="list-style-type: none"> <li>• Uses the user interface and command set common to all Cisco routers and Cisco Catalyst switches</li> <li>• Can remotely monitor ports in a Layer 2 switch network from any other switch in the same network</li> <li>• Provides rich set of MIB and object identifier (OID) support for comprehensive in-band management.</li> <li>• Provides excellent troubleshooting resources, including debugging tools, logs, and counters, to enable quick diagnosis of network problems</li> </ul>
<p><b>Management tools</b></p> <ul style="list-style-type: none"> <li>• CiscoWorks LAN Management Solution (LMS)</li> <li>• Cisco Network Assistant</li> <li>• Cisco Device Manager</li> </ul>	<ul style="list-style-type: none"> <li>• Provides powerful management tools that simplify the configuration, administration, monitoring, and troubleshooting of Cisco networks</li> <li>• Improves the accuracy and efficiency of operations staff and increases the overall availability of the network</li> </ul>

### Product Specifications

Table 2 lists hardware specifications, Table 3 lists management and standards support, and Table 4 lists safety and compliance information.

**Table 2.** Hardware Specifications

Description	Specification																																													
<b>Performance</b>	<ul style="list-style-type: none"> <li>• Up to 128-Gbps switching fabric</li> <li>• Forwarding rate based on 64-byte packets; up to 59.2 million packets per second (mpps)</li> <li>• 256 MB double-data-rate (DDR) synchronous dynamic RAM (SDRAM) and 64 MB Flash memory</li> <li>• Configurable maximum transmission units (MTUs) of up to 9018 bytes (jumbo frames)</li> <li>• MAC, routing, security, and QoS scalability numbers depend on the type of template used in the switch:</li> </ul>																																													
	<table border="1"> <thead> <tr> <th></th> <th>Default Template</th> <th>Access Template</th> <th>VLAN Template</th> <th>Routing Template</th> </tr> </thead> <tbody> <tr> <td>MAC addresses</td> <td>6K</td> <td>4K</td> <td>12K</td> <td>3K</td> </tr> <tr> <td>IGMP groups and multicast routes</td> <td>1K</td> <td>1K</td> <td>1K</td> <td>1K</td> </tr> <tr> <td>Total unicast routes</td> <td>8K</td> <td>6K</td> <td>0</td> <td>11K</td> </tr> <tr> <td>Directly connected hosts</td> <td>6K</td> <td>4K</td> <td>0</td> <td>3K</td> </tr> <tr> <td>Indirect routes</td> <td>2K</td> <td>2K</td> <td>0</td> <td>8K</td> </tr> <tr> <td>Security access control entries)</td> <td>1K</td> <td>2K</td> <td>1K</td> <td>1K</td> </tr> <tr> <td>QoS access control entries)</td> <td>0.5K</td> <td>0.5K</td> <td>0.5K</td> <td>0.5K</td> </tr> <tr> <td>PBR access control entries)</td> <td>0</td> <td>0.5K</td> <td>0</td> <td>0.5K</td> </tr> </tbody> </table>		Default Template	Access Template	VLAN Template	Routing Template	MAC addresses	6K	4K	12K	3K	IGMP groups and multicast routes	1K	1K	1K	1K	Total unicast routes	8K	6K	0	11K	Directly connected hosts	6K	4K	0	3K	Indirect routes	2K	2K	0	8K	Security access control entries)	1K	2K	1K	1K	QoS access control entries)	0.5K	0.5K	0.5K	0.5K	PBR access control entries)	0	0.5K	0	0.5K
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<b>Connectors and cabling</b>	<p>SKU 1: Cisco Catalyst Blade Switch 3120G</p> <ul style="list-style-type: none"> <li>• Supports up to 8 Gigabit Ethernet uplink ports: 4 10/100/1000BASE-T ports and 4 SFP-based Gigabit ports (using Cisco TwinGig Converter Modules)</li> </ul> <p>SKU 2: Cisco Catalyst Blade Switch 3120X</p> <ul style="list-style-type: none"> <li>• Supports up to 4 10/100/1000BASE-T ports and 2 X2-based 10 Gigabit ports</li> <li>• SFP and X2 cage supports only SFP and X2 modules from Cisco</li> </ul> <p>Common on both SKUs</p> <ul style="list-style-type: none"> <li>• 4 external 10/100/1000BASE-T ports</li> <li>• Management console port: RJ-45-to-DB9 cable for PC connections</li> <li>• 2 high-speed stack connectors</li> </ul> <p>Table 5 later in this document lists supported X2 modules.</p>																																													
	<b>Power consumption</b>	12V at 5A (60W)																																												

Description	Specification
<b>Indicators</b>	Total of 18 LEDs on the faceplate: <ul style="list-style-type: none"> <li>• 12 LEDs for uplink port status</li> <li>• 4 switch-status LEDs</li> <li>• 2 HP-specific LEDs to indicate health and user ID (UID) status</li> </ul>
<b>Dimensions (L x W x H)</b>	10.9 in. x 7.6 in. x 1.1 in. 27.7 cm x 19.3 cm x 2.8 cm
<b>Weight</b>	Approximately 3 lb (1.36 kg)
<b>Environmental ranges</b>	<ul style="list-style-type: none"> <li>• Operating temperature: 0 to 40°C (32 to 104 F)</li> <li>• Storage temperature: -25 to 70°C (-13 to 158 F)</li> <li>• Operating relative humidity: 10 to 85% noncondensing</li> <li>• Storage relative humidity: 5 to 95% noncondensing</li> </ul>
<b>Predicted mean time between failure (MTBF)</b>	Approximately 387,000 hours

**Table 3.** Management and Standards Support

Description	Specification
<b>MIB support</b>	<ul style="list-style-type: none"> <li>• BRIDGE-MIB</li> <li>• CISCO-CDP-MIB</li> <li>• CISCO-CLUSTER-MIB</li> <li>• CISCO-CONFIG-MAN-MIB</li> <li>• CISCO-ENTITY-FRU-CONTROL-MIB</li> <li>• CISCO-ENVMON-MIB</li> <li>• CISCO-FLASH-MIB</li> <li>• CISCO-FTP-CLIENT-MIB</li> <li>• CISCO-HSRP-MIB</li> <li>• CISCO-HSRP-EXT-MIB</li> <li>• CISCO-IGMP-FILTER-MIB</li> <li>• CISCO-IMAGE-MIB</li> <li>• CISCO-IP-STAT-MIB</li> <li>• CISCO-L2L3-INTERFACE-CONFIG-MIB</li> <li>• CISCO-POE-EXTENSIONS-MIB</li> <li>• CISCO-MAC-NOTIFICATION-MIB</li> <li>• CISCO-MEMORY-POOL-MIB</li> <li>• CISCO-PAGP-MIB</li> <li>• CISCO-PING-MIB</li> <li>• CISCO-PROCESS-MIB</li> <li>• CISCO-RTTMON-MIB</li> <li>• CISCO-STP-EXTENSIONS-MIB</li> <li>• CISCO-SYSLOG-MIB</li> <li>• CISCO-TCP-MIB</li> <li>• CISCO-VLAN-IFTABLE-RELATIONSHIP-MIB</li> <li>• CISCO-VLAN-MEMBERSHIP-MIB</li> <li>• CISCO-VTP-MIB</li> <li>• ENTITY-MIB</li> <li>• ETHERLIKE-MIB</li> <li>• IF-MIB</li> <li>• IGMP-MIB</li> <li>• IPMROUTE-MIB</li> <li>• OLD-CISCO-CHASSIS-MIB</li> <li>• OLD-CISCO-FLASH-MIB</li> <li>• OLD-CISCO-INTERFACES-MIB</li> <li>• OLD-CISCO-IP-MIB</li> <li>• OLD-CISCO-SYS-MIB</li> <li>• OLD-CISCO-TCP-MIB</li> <li>• OLD-CISCO-TS-MIB</li> <li>• OSPF-MIB (RFC 1253)</li> <li>• PIM-MIB</li> <li>• RFC1213-MIB</li> <li>• RFC1253-MIB</li> <li>• RMON-MIB</li> <li>• RMON2-MIB</li> <li>• SNMP-FRAMEWORK-MIB</li> <li>• SNMP-MPD-MIB</li> <li>• SNMP-NOTIFICATION-MIB</li> <li>• SNMP-TARGET-MIB</li> <li>• SNMPv2-MIB</li> <li>• TCP-MIB</li> <li>• UDP-MIB</li> </ul>

Description	Specification
<b>Standards</b>	<ul style="list-style-type: none"> <li>• IEEE 802.1s</li> <li>• IEEE 802.1w</li> <li>• IEEE 802.1x</li> <li>• IEEE 802.3ad</li> <li>• IEEE 802.3x full duplex on 10BASE-T, 100BASE-TX, and 1000BASE-T ports</li> <li>• IEEE 802.1D Spanning Tree Protocol</li> <li>• IEEE 802.1p CoS Prioritization</li> <li>• IEEE 802.1Q VLAN</li> <li>• IEEE 802.3 10BASE-T specification</li> <li>• IEEE 802.3u 100BASE-TX specification</li> <li>• IEEE 802.3ab 1000BASE-T specification</li> <li>• IEEE 802.3z 1000BASE-X specification</li> <li>• 1000BASE-SX</li> <li>• 1000BASE-LX/LH</li> <li>• 10GBASE-SR</li> <li>• 10GBASE-LRM</li> <li>• 10GBASE-CX4</li> <li>• 10GBASE-LX4</li> <li>• 10GBASE-LR</li> <li>• RMON I and II standards</li> <li>• SNMPv1, SNMPv2c, and SNMPv3</li> </ul>

**Table 4.** Safety and Compliance

Description	Specification
<b>Safety certifications</b>	<ul style="list-style-type: none"> <li>• UL/CUL Recognition to UL/CSA 60950-1</li> <li>• TUV Bauart to EN 60950-1</li> <li>• CB report and certificate to IEC 60950-1 with all country deviations</li> <li>• CE Marking</li> </ul>
<b>Electromagnetic compatibility certifications</b>	<ul style="list-style-type: none"> <li>• FCC Part 15 Class A</li> <li>• EN 55022 Class A (CISPR22 Class A)</li> <li>• VCCI Class A</li> <li>• AS/NZS 3548 Class A or AS/NZS CISPR22 Class A</li> <li>• MIC Class A</li> <li>• CE Marking</li> </ul>
<b>Telecommunications</b>	CLEI code
<b>Warranty</b>	90 days

### Ordering Information

Table 5 lists ordering information.

**Table 5.** Ordering Information

Part Number	Description
<b>Switches</b>	
<b>WS-CBS3120G-S</b>	Cisco Catalyst Blade Switch 3120G for HP w/ IP Base
<b>WS-CBS3120X-S</b>	Cisco Catalyst Blade Switch 3120X for HP w/ IP Base
<b>Upgrade Licenses</b>	
<b>3120-IPS-LIC</b>	Software Upgrade License for Cisco Catalyst Blade Switch 3120 to IP Services
<b>SFP Modules</b>	
<b>GLC-LH-SM=</b>	Gigabit Ethernet SFP, LC connector, long-wavelength / long-haul transceiver (single mode)
<b>GLC-T=</b>	Gigabit Ethernet SFP, RJ45 based Copper
<b>GLC-SX-MM=</b>	Gigabit Ethernet SFP, LC connector, short-wavelength transceiver (multimode)
<b>X2 and TwinGig Converter Modules</b>	

Part Number	Description
<b>CVR-X2SFP</b>	TwinGig Converter Module
<b>X2-10GB-CX4=</b>	10GBASE-CX4 X2 Module
<b>X2-10GB-SR=</b>	10GBASE-SR X2 Module
<b>X2-10GB-LRM=</b>	10GBASE-LRM X2 Module
<b>X2-10GB-LX4=</b>	10GBASE-LX4 X2 Module
<b>X2-10GB-LR=</b>	10GBASE-LR X2 Module
<b>Cisco SMARTnet® Options</b>	
<b>CON-SNT-CBS3120G</b>	Cisco SMARTnet with 8x5 next business day (NBD) hardware advance replacement
<b>CON-SNTE-CBS3120G</b>	Cisco SMARTnet with 8x5 4-hour hardware advance replacement
<b>CON-SNTP-CBS3120G</b>	Cisco SMARTnet with 24x7 4-hour hardware advance replacement
<b>CON-S2P-CBS3120G</b>	Cisco SMARTnet with 24x7 2-hour hardware advance replacement
<b>CON-SNT-CBS3120X</b>	Cisco SMARTnet with 8x5 next business day (NBD) hardware advance replacement
<b>CON-SNTE-CBS3120X</b>	Cisco SMARTnet with 8x5 4-hour hardware advance replacement
<b>CON-SNTP-CBS3120X</b>	Cisco SMARTnet with 24x7 4-hour hardware advance replacement
<b>CON-S2P-CBS3120X</b>	Cisco SMARTnet with 24x7 2-hour hardware advance replacement

**Note:** There are two additional switch part numbers: WS-CBS3125G-S and WS-CBS3125X-S. WS-CBS3125G-S is the same product as WS-CBS3120G-S, and WS-CBS3125X-S is the same product as WS-CBS3120X-S. These switches also have corresponding upgrade licenses and Cisco SMARTnet options.

**Service and Support**

Cisco is committed to reducing TCO and offers technical support services to help ensure that Cisco products operate efficiently, remain highly available, and benefit from the most up-to-date system software. Table 6 describes service and support that is available directly from Cisco and through resellers.

**Table 6.** Service and Support

Technical Support Service	Features	Benefits
<b>Cisco SMARTnet Service</b>	<ul style="list-style-type: none"> <li>• Access to Cisco IOS Software updates</li> <li>• Web access to technical support tools and repositories</li> <li>• 24-hour telephone support through the Cisco Technical Assistance Center (TAC)</li> <li>• Advance replacement of hardware</li> </ul>	<ul style="list-style-type: none"> <li>• Minimizes network downtime through reliable day-to-day support and prompt resolution of critical network issues</li> <li>• Lowers TCO by using Cisco networking expertise and knowledge</li> <li>• Protects your network investment through Cisco IOS Software updates that provide patches and new functions</li> </ul>

**For More Information**

For more information about Cisco products, contact:

- United States and Canada: (toll free) 800 553-6387
- Europe: 32 2 778 4242
- Australia: 612 9935 4107
- Other: 408 526-7209
- <http://www.cisco.com>

For more information about the HP c-Class BladeSystem, contact: <http://www.HP.com>.



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