

Overview

HP 6120G/XG Blade Switch

Designed specifically for the c-Class BladeSystem enclosure, the HP 6120G/XG Blade Switch provides sixteen 1Gb downlinks and four 1Gb copper uplinks, two 1Gb SFP uplinks along with three 10Gb uplinks and a single 10Gb cross-connect. A robust set of industry standard Enhanced Layer 2 switching functions, QoS metering, security and High Availability features round out this extremely capable switch. The 6120G/XG is perfectly suited for datacenters in transition where a mix of 1Gb and 10Gb network connections are required. The 6120G/XG part of HP's data center solutions for blade enclosures that provides consistency and interoperability across existing network investments to help reduce the complexity of network management through resilient core-to-edge connectivity and

automated provisioning technologies. With a variety of connection interfaces the 6120G/XG switch offers excellent investment protection, flexibility, and scalability, as well as ease of deployment and reduced operational expense.

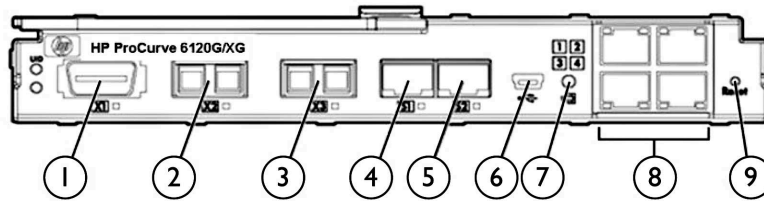


Figure 1 HP 6120G/XG Blade Switch

- | | |
|-------------------|----------------------------------|
| 1. 10GbE CX4 port | 6. USB 2.0 port |
| 2. 10GbE XFP port | 7. Next button |
| 3. 10GbE XFP port | 8. Ports 1-4 (10/100/1000BASE-T) |
| 4. 1Gb SFP port | 9. Reset button (recessed) |
| 5. 1Gb SFP port | |

What's New

- Support for new HP ProLiant G7 Server Blades
- Support for Uplink Failure Detection
- sFlow
- Enhanced routing features including static and RIP routing and Identity Based ACLs
- Enhanced QoS

At A Glance

Performance:

- Non blocking architecture
- Wire speed switching on all four 10/100/1000T RJ-45 uplink ports
- Wire speed switching on both 1Gb SFP uplink ports
- Wire speed switching on all three 10Gb uplink ports
- Wire speed switching on all sixteen 1Gb server ports
- Greater than 1:1 downlink to uplink bandwidth ratio
- Store and Forward Switching

Management:

- Offers simplified management through CLI option
- Can be managed through HTTP, HTTPS,
- " Standards based SNMP management via tools such as PCM and PCM+
- OOBM via Onboard Administrator
- USB console port
- Web and telnet management options available
- Automated provisioning via Datacenter Connection Manager (DCM)

Security:

- Port security based on 802.1x, web, mac authentication limits access to unwanted users
- Secured access through SSH and HTTPS (SSL), SFTP
- Offers RADIUS Authentication
- Offers TACACS+ Authentication
- Port security and mac address lockout for access control
- STP root guard and per-port broadcast throttling for protection against misbehaved traffic.



Models

Models

HP 6120G/XG Ethernet Blade Switch

498358-B21



Standard Features

Compatibility

HP ProLiant Servers

- HP ProLiant BL2x220c G7
- HP ProLiant BL2x220c G5
- HP ProLiant BL260c G5
- HP ProLiant BL280c G6
- HP ProLiant 420c Gen8
- HP ProLiant BL460c Gen8
- HP ProLiant BL460c G7
- HP ProLiant BL460c G6
- HP ProLiant BL460c G5
- HP ProLiant BL460c
- HP ProLiant BL465c Gen8

HP ProLiant BL465c G7
 HP ProLiant BL465 G6
 HP ProLiant BL465 G5
 HP ProLiant BL465c
 HP ProLiant BL480c
 HP ProLiant BL490c G7
 HP ProLiant BL490c G6
 HP ProLiant BL495c G6
 HP ProLiant BL495c G5
 HP ProLiant BL660c Gen8
 HP ProLiant BL620c G7
 HP ProLiant BL680c G5
 HP ProLiant BL680c G7
 HP ProLiant BL685c G7
 HP ProLiant BL685 G6
 HP ProLiant BL685 G5
 HP ProLiant BL685c

NOTE: Some servers listed above may be discontinued.

HP Integrity Servers

HP Integrity BL860c Server Blade
 HP Integrity BL860c i2 Server Blade
 HP Integrity BL870c Server Blade
 HP Integrity BL870c i2 Server Blade
 HP Integrity BL890c i2 Server Blade

HP ProLiant BL c-Class Server Blade Enclosures

HP BladeSystem c3000 Enclosure
 HP BladeSystem c7000 Enclosure

Required Network Cabling

10Base-T	Categories 3, 4 or 5 UTP (100 meters) EIA/TIA-568 100-ohm STP (100 meters)
100Base-TX	Category 5 UTP (100 meters) EIA/TIA-568 100-ohm STP (100 meters)
1000Base-T	Category 5 UTP (100 meters) EIA/TIA-568 100-ohm STP (100 meters)
10Gb	Multimode fiber cable; 62.5/125 or 50/125 microns Singlemode fiber cable: 9/125 micron

The following CX4 cable lengths have been qualified and can be purchased directly from HP. Please see the Related Options section of this QuickSpecs:
 HP BladeSystem c-Class.5m 10-GbE CX4 Cable
 HP BladeSystem c-Class 1m 10-GbE CX4 Cable
 HP BladeSystem c-Class 3m 10-GbE CX4 Cable
 HP BladeSystem c-Class 15m 10-GbE CX4 Cable

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Service and Support

Service and Support

HP Care Pack Services: Packaged server and storage services for increased uptime, productivity and ROI

When you buy HP server and storage products and solutions, it's also a good time to think about what levels of support you may need. Our portfolio of service options reduce deployment and management worries while helping you get the most out of your server and storage investments. We take a holistic approach to your environment, bridging servers, blades, storage, software and network infrastructures with our packaged HP Care Pack Services for servers and storage.

Protect your business beyond warranty

When it comes to robustness and reliability, standard computing equipment warranties have matured along with technology. Good news that can also create problems stemming from depending on standard warranties designed to only protect against product defects and some downtime causes. Using a standard approach to warranty uplifts, such as HP Care Pack Services, helps reduce downtime risks and

provides operational consistency for mission-critical and standard business computing.

HP Care Pack Services: Upgrading or extending standard server and storage warranties cost effectively

HP recommends Proactive Care for your BladeSystem servers, enclosures and components to prevent problems with proactive advice and assistance, resolve issues and rapidly recover by connecting to HP's enhanced call experience and advanced technical expertise. In addition with HP Proactive Select, you can acquire the specific proactive constancy and technical services. HP Proactive Select menu offers a broad set of service options that you can mix and match depending on your specific requirements. Proactive service options include offers for server, storage, network, SAN device, software, environment and education services.

HP server and storage lifecycle support services offers a full spectrum of customer care-from technology support to complex migrations to complete managed services. HP Factory Express provides customization, integration and deployment services for turnkey solutions. HP Education Services offer flexible, comprehensive training on to help your IT staff get the most out of your server and storage investments. HP Financial solutions extend innovative financing and cost-effective asset management programs-from purchase to equipment retirement.

Learn more: www.hp.com/services/servers and www.hp.com/services/storage

NOTE: Care Pack Services availability may vary by product and country.

HP Care Pack Services are sold by HP and HP Authorized Service Partners:

- Services for customers purchasing from HP or an enterprise reseller are quoted using HP order configuration tools.
- Customers purchasing from a commercial reseller can find HP Care Pack Services at <http://www.hp.com/go/lookuptool>

Recommended HP Care Pack Services for optimal satisfaction with your HP product

Recommended Services

Hardware Options Support

HP Care Packs provide support for all HP-branded hardware options qualified for inclusion in your server or storage solution. Any additional HP-qualified options installed within the server are covered at the same service level and for the same period as the server and no additional cost.

- Help improve or maintain system uptime
- Convenient onsite support
- Committed response time

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE>

3-Year HP Hardware Support Onsite Service, 4-hour response, 24x7

Provides you with rapid remote support and if required an HP authorized representative who will arrive on site any time and day of the year to begin hardware maintenance service within 4 hours of the service request being logged.

This service provides a trained HP service specialist to perform an installation that meets HP quality standards, for:

- Help improve or maintain system uptime
- Convenient onsite support
- Committed response time

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE>

HP Installation and Startup of HP ProLiant Servers

Provides for the installation of your new HP ProLiant server and operating system to assist you in bringing your new HP ProLiant server and operating system into operation in a timely and professional manner.

This service provides a trained HP service specialist to perform an installation that meets HP quality standards, for:

- Delivery of the service at a mutually scheduled time convenient to your organization
- Availability of an HP service specialist to answer basic questions during the onsite delivery of this service
- Custom installation as detailed in "Delivery specifications" or in a Statement of Work (SOW)
- Verification prior to installation that all service prerequisites are met

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-7572ENN.pdf>

Optional HP Care Pack Services that will enhance your HP product experience

Optional Services

3-Year HP Hardware Support Onsite Call-to-Repair (CTR) Service, 6- or 24-hour

As an alternative to our recommended support level, for customers who need committed call-to-repair for server hardware.

Provides your IT manager with a team of support specialists who will quickly begin troubleshooting the system to help return the hardware to operating condition within 6 or 24 hours of the initial service request to the HP Global Solution Center.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EN.pdf>

HP Proactive Select Service

Customer needs on demand access to consulting, technical proactive services and education courses

Provides a flexible way to purchase HP best-in-class consultancy and technical services. You can buy Proactive Select Service Credits when you purchase your hardware and then use the credits over the next 12 months.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-3842ENN>

eSupport

HP eSupport is a portfolio of technology-based services that assist you with managing your business environment - from the desktop to the data center.

Support Portal

The HP support portal provides one-stop access to the information, tools and services you need to manage the daily operations of your IT environment.

Features include:

- Access to self-solve tools (including search technical knowledge base)
- Efficient logging and tracking of support cases
- Collaboration with other business and IT professionals
- Download of patches and drivers
- Access to diagnostic tools
- Proactive notification of relevant information

Access to certain features of the support portal requires an HP service agreement. To access the support portal, visit: <http://www.hp.com/support>

HP Insight Remote Support software delivers secure remote support for your HP Servers and Storage, 24 X 7, so you can spend less time solving problems and more time focused on your business. You can have your systems remotely monitored for hardware failure using secure technology that's been proven at thousands of companies around the world. In many cases, you can avoid problems before they occur.

Customer Technical Training

In today's cost-conscious business environment, IT professionals, developers, consultants and users face an interesting challenge: how to keep up with the latest technologies and expand important skills while delivering profitable results on current projects. To help address this challenge, HP offers innovative training solutions that help keep you up-to-date on virtualization, server, storage, Insight Control, Citrix, Microsoft® and open source/Linux-related topics-while spending less time away from business-critical activities.

HP Services Awards

HP Technology Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our

services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction.

Additional Services Information

To learn more on HP ProLiant servers, HP BladeSystem servers and HP storage products, please contact your HP sales representative or HP Authorized Channel Partner. Or visit: www.hp.com/services/proliant or www.hp.com/services/bladeSystem or <http://www.hp.com/services/storage>

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Related Options

CX4 Cables	HP BladeSystem c-Class .5m 10-GbE CX4 Cable Option	444477-B21
	HP BladeSystem c-Class 1m 10-GbE CX4 Cable Option	444477-B22

XFP to SFP+ Cables	HP BladeSystem c-Class 3m 10-GbE CX4 Cable Option	444477-B23
	HP BladeSystem c-Class 15m 10-GbE CX4 Cable Option	444477-B27
	HP X244 XFP SFP+ 1m Direct Attach Cable	J9300A
	HP X244 XFP SFP+ 3m Direct Attach Cable	J9301A
	HP X244 XFP SFP+ 5m Direct Attach Cable	J9302A
XFP Options	HP 850nm Short-range 10 Gigabit Small Form Factor Pluggable Module Option Kit NOTE: Each kit contains a single 850nm SR XFP fiber module. Only HP supplied XFP modules will operate in the HP 6120G/XG switch.	443756-B21
	HP 1350nm Long-range 10 Gigabit Small Form Factor Pluggable Module Option Kit NOTE: Each kit contains a single 1310nm LR XFP fiber module. Only HP supplied XFP modules will operate in the HP 6120G/XG switch.	443757-B21
SFP Options	HP BLc Virtual Connect 1Gb RJ-45 Small Form Factor Pluggable Option Kit	453154-B21
	HP BLc Virtual Connect 1Gb SX Small Form Factor Pluggable Option Kit	453151-B21

Service and Support Offerings

NOTE: The HP Care Pack service part numbers below for ProLiant BL c-Class server blades, cover the server blade and all HP branded hardware options qualified for the server, purchased at the same time or afterwards, internal to the server.

Hardware Services On-site Service

HP 3year 4hour 13x5 c-Class Server Blade HW Support	UE458E
HP 3year 4hour 24x7 c-Class Server Blade Hardware Support	UE459E
HP 3year 6hour 24x7 Call to Repair c-Class Server Blade Hardware Support	UE460E

Support Plus 24

HP 3year SupportPlus24 Microsoft c-ClassServer Blade Service	UE473E
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NOTE: HP Care Pack services for the c7000 and c3000 Enclosure cover the enclosure, power supplies and fans. HP qualified rack options are covered by these services when installed within the same rack. HP supported c-Class enclosure devices including pass thru, Ethernet interconnect and virtual connect modules are also covered by the c7000 and c3000 enclosure Care Pack services.

NOTE: SAN/Fabric switches for the HP c-Class BladeSystem are not covered under the c7000 and c3000 enclosure Care Packs, SAN/Fabric switches carry separate Care Packs. SAN/Fabric Switch Care Pack service level support should always be uplifted to match existing storage or server service level.

Hardware Support Services On-site Service

HP 3 year Next business day c7000 Enclosure Hardware Support	UE477E
NOTE: Uplifts the Ethernet devices to the same level of warranty as the c-class enclosure.	
HP 3 year 4 hour 13x5 c7000 Enclosure Hardware Support	UE478E
HP 3 year 4 hour 24x7 c7000 Enclosure Hardware Support	UE479E
HP 3 year 6 hour 24x7 Call to Repair c7000 Enclosure Hardware Support	UE480E

Installation & Start-up Services

HP Startup Blade System c-Class Infrastructure Service	UE602E
HP Startup Blade System c-Class Enhanced Network Service	UE603E
HP Install c-Class Server Blade Service	UE493E
HP Install c-Class Enclosure & ServerBlade Service	UE494E

NOTE: For more information, customer/resellers can contact:
<http://www.hp.com/services/bladessystemservices>

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Technical Specifications

Shipping Dimensions	Length	11.42 in (290 mm)
	Width	14.49 in (368 mm)
	Height	2.36 in (60 mm)
Shipping Weight		2.0 kg (4.41 lbs)
Product Specifications Hardware	Performance	36 Gbps external port bandwidth per BladeSystem enclosure (72 Gbps full duplex) 106Gb total throughput
		Forwarding rate 1.5 million pps per Gigabit port, (64-byte packets) and 14.8 million pps per 10 Gig port
		Non-blocking, full-wire speed for all connections Auto-MDI/MDIX, auto-negotiation and auto-sensing with full-duplex support.
	Forwarding Mode	Store and forward

		MAC Addresses	Supports 16K MAC addresses per switch in a BladeSystem Enclosure
		Forwarding Table Age Time (Maximum age)	1 to 1,000,000 seconds (default: 300 seconds)
		Jumbo Frame Support	9220 Byte
		Multicast Groups	256
		Memory	512 MB Main, 256MB flash and 2MB packet buffer per interconnect switch
	Connectors and Cabling	Connector	4 RJ-45 2 SFP 2 10Gb XFP Module cages 1 10Gb CX4 1 mini USB Management
		Cable Support	FCC Class A ICES-003 Class A AS/NZS 3548 Class A VCCI Class A
	Network Transfer Rate	10 Base-T (half-duplex)	10 Mbps
		10 Base-T (full-duplex)	20 Mbps
		100 Base-TX (half-duplex)	100 Mbps
		100 Base-TX (full-duplex)	200 Mbps
		1000 Base-TX (half and full-duplex)	2000 Mbps
		10Gb (full duplex)	20000 Mbps
Indicators	Backlit port number and status indicator LED, one per bulkhead port, blue/amber/green		
	Module status indicator, amber/green		
	Module locator (UID), blue		
	10/100 speed Link/Activity indicator, one per RJ45 port, green		
	1000 Link/Activity indicator, one per RJ45 port, amber		
	1000 Link/Activity indicator, one per SFP port, amber		
Dimensions			
		Length	10.5 in (267.7 mm)
		Width	7.5 in (192.79 mm)
		Height	1.1 in (27.94 mm)
Weight			1.7 kg (3.7 lbs)
Environmental Ranges		Temperature Range	
		Operating	50° to 95° F (10° to 35° C)
		Non-operating	-40° to 158° F (-40° to 70° C)
		Relative Humidity (non-condensing)	Operating 5% to 95%
Power Specification		Power Requirements	12V @ 3.7A (44.4 W) (per interconnect switch)
Product Specifications Software	Security Features	SSHv2, TACACS and TACACS+ VLANs can be configured to provide segregation for data - improving bandwidth, performance and limiting traffic to its designated domains. The Switch also provides secured access through SSH v2, protecting against IP spoofing as well as DNS spoofing. Support of HTTPS, RADIUS TACACS and TACACS+ enables users to meet their security requirements.	
	Spanning Tree Features	802.1d, 802.1w, 802.1s Industry standard Spanning Tree provides redundancy and the loop avoidance capabilities to keep the network not only up, but operating at peak	

performance.

Based on the industry standard 802.1w, Rapid Spanning Tree Protocol (RSTP) offers fast convergence - reducing packet loss and downtime in high-availability and high resilient networks. Industry-standard based RSTP offers instant failover to secondary links in an unlikely event of primary link failure.

This switch also offers Multiple Spanning Tree Protocol (MSTP; 802.1s) for seamless integration into networks running 802.1s. Multiple Spanning Tree enables networks to utilize individual uplinks for separate VLANs thus improving the overall performance of the network. Up to 32 Spanning Tree Groups (STGs) are supported.

Trunking Features

802.3 ad

Reduced downtime in an unlikely event of link failure by supporting link aggregation protocol. This link aggregation is compatible with Cisco Etherchannel® thus providing seamless integration into Cisco® based networks.

VLAN Features

VLANs (802.1Q) can be configured to provide segregation for data - improving bandwidth, performance and limiting traffic to its designated domains.

Management Features

This switch provides multiple easy-to-use configuration and management options. The management interface enables administrators to easily configure the most advanced features such as Rapid Spanning Tree and SNMP management by pointing and clicking.

The switch also enables sophisticated administrators to configure and manage the switch through SNMP. Full Support is provided for SNMP v1,v2c and v3.

QoS Features

Data can be classified in eight priority queues to ensure maximum bandwidth availability for time sensitive and mission critical traffic.

Data can be prioritized based on 802.1p CoS and DSCP.
Data can be easily reclassified from 802.1P to DSCP or from DSCP to 802.1.

The HP 6120G/XG Blade Switch adheres to a strict queue mechanism to ensure important business-sensitive traffic is delivered ahead of other traffic.

Standards Support

IEEE 802.1D MAC
Bridges

Supported:
16K MAC entries
2MB Packet memory
9K Jumbo Packets
256 MB flash memory

IEEE 802.1p Priority

Supported:
4 HW queues to map to 8 802.1p packet priority queues (can be configured for 2, 4, or 8 hardware queues to be mapped to 8 802.1p priority queues)

IEEE 802.1Q VLANs

Supported:
256 VLANs, 4K VLAN IDs
802.1Q Tagged VLAN
GVRP is supported for VLAN registration

IEEE 802.1v VLAN
classification by Protocol
Port

Support is 3 protocols per port

VLAN Classification by IP,
MAC This is the ability to
auto classify VLAN
membership of a frame via
its IP, or its MAC.

Not Supported

QoS

Supported for dscp, Cos

IEEE 802.1w Rapid Reconfiguration of Spanning Tree	Supported: 32 Spanning Tree Instances in FW PVRST+ not supported
IEEE 802.1s Multiple Spanning Tree	Supported: 32MSTP Instances PVST+ is not supported
BPDU Protection and STP root guard	Supported: BPDU guard STP root guard
IEEE 802.3ad Link Aggregation Control Protocol (LACP)	Supported: Up to 24 trunks with 8 members per trunk LACP is supported
IEEE 802.3x Flow Control	Supported: Auto Negotiation is also supported
RFC 792 ICMP Rate Limiting	Supported Ingress Rate Limiting supported
Broadcast Throttling	Supported: One global configuration for all the ports
RFC 951 BOOTP & RFC 1542 BOOTP Extensions	Supported Includes DHCP on OA port
RFC 2030 Simple Network Time Protocol (SNTP)	Supported: Includes configurable Daylight Savings Time supported
RFC 2131 DHCP	Supported
QoS (COS, TOS, DSCP)	Supported
TFTP, SFTP	Supported: (FTP not supported)
Uni-Directional Link Detection	Supported
Uplink Failure Detection	Supported
IPv6 Host	Supported
IPv4 Static Route	Supported (256 Routes)
RIP V2	Supported
IP Multicast	
RFC 3376 IGMPv3 (Data Driven)	Full IGMP v1, v2
Network Management	
IEEE 802.1AB Link Layer Discovery Protocol (LLDP)	Supported
ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)	Supported
RFC 3164 BSD syslog Protocol	Supported: NOTE: Up to 6 syslog servers.
SNMPv1/v2c/v3	Supported
Device Management	
HTML and telnet management	Supported
Authorized Managers List	Supported
Onboard Administrator	Supported
ISMIC integration (musts per spec)	
Security	
IEEE 802.1X Port Based Network Access Control	Supported NOTE: Up to 32 users on a single port.
Web Authentication	Supported NOTE: This is used to login to the network port, not to the HTML web agent on the switch.

Mac Authentication	Supported
Concurrent 802.1X, Web, and MAC auth	Supported
TACACS+ & RADIUS	Supported
Secure Sockets Layer (SSL)	Supported
SSHv1/SSHv2 Secure Shell	Supported
	NOTE: Also supports SCP for configuration and FW downloads.
Port Security, MAC Address lock down, MAC Address Lock outs	Supported
DHCP Snooping	Supported
Monitor and Diagnostics	
Port Mirroring	Supported
RFC3176 SFlow	Supported
RMON	Supported:
	RMON V1/V2
	NOTE: Groups supported are Statistics, history, alarms, and events.

Safety and Compliance	TUV to UL 60950-1, and CAN/CSA C22.2 No. 60950-1 and to EN 60950-1
Safety Certifications	CE Marking
	RoHS 6/6 compliant

Electromagnetic Emissions Certifications	FCC Part 15 Class A
FCC Part 15 Class A	EN 55022: 1998 (CISPR22)
	EN 55024: 1998 (CISPR24)
	VCCI Class A
	AS/NZS 3548 Class A CE
	CNS 13438 Class A MIC
	MIC

Environment-friendly Products and Approach	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.
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