



HP 10 Gb Ethernet Blade Switch for HP BladeSystem c-Class



Introducing the HP 10Gb Ethernet BL-c Switch, a high performance, low latency 10Gb Layer 2/3 switch optimized for bandwidth intensive applications. It provides resiliency, high availability, and fault tolerance at an affordable price.

Overview

Designed for the BladeSystem c-Class enclosure, the HP 10Gb Ethernet Blade Switch for BladeSystem c-Class delivers 10Gb Ethernet uplink and downlink ports for maximum bandwidth for next-generation networks.

Twenty 10Gb ports (16 downlinks and 4 uplinks) provide switching power to drive the most demanding of applications. Whether it's Video on Demand, High Performance Computing Clusters, medical image rendering, or iSCSI storage, the HP 10Gb Ethernet BL-c Switch is designed to handle it all.

Looking to consolidate cables? The switch provides four 10Gb uplinks replacing the equivalent of 40 individual 1Gb links. Layer 2/3 switching and routing keeps sensitive local server traffic within the enclosure and simplifies your network. Resiliency and high availability makes sure that your network remains up and fluid at all times.

A robust set of industry standard Ethernet Layer 2 switching and layer 3 routing functions, QOS, security and High Availability features round out this extremely flexible and capable switch.

The HP 10Gb Ethernet Blade Switch dramatically reduces cabling, power and cooling requirements compared to stand-alone switches, while providing 400 Gigabits per second of full-duplex bandwidth to handle the most demanding applications.

Performance

- All 10Gb switching with non blocking internal architecture.
- Low latency for High Performance Computing Clusters
- Wire-speed L2/3 switching on all ports
- L3 forwarding controls subnet traffic

Management

- Offers simplified management through two CLI options: iSCLI offers an industry-standard CLI to reduce the learning curve— or the easy to use BLADEOS CLI
- Can also be managed through HTTP, HTTPS, and SNMP.
- BladeHarmony Manager, a GUI application allows multiple switches to be upgraded at scheduled times.
- An embedded sFlow agent on the switch can be used to visualize traffic flows volume in a network to help with capacity planning, pinpoint usual or malicious behavior, billing and other tasks*

Security

- Robust ACLs provide maximum security
- Port security based on 802.1x limits access to unwanted users
- Secured access through SSH and HTTPS (SSL)
- RADIUS Authentication
- TACACS+ Authentication
- Traffic can be forwarded between VLANs (802.1Q) through IP forwarding—which prevents traffic from being exposed unnecessarily to the outside network

• * Available with optional software release

Ideal environment

Financial and Scientific Applications

- Ideal for high performance analytic applications
- Low latency for market data acquisition or iSCSI storage
- 400 Gb full-duplex bandwidth for today's multi-core virtualized servers
- Layer 2/3 at the enclosure level reduces and secures network traffic

Higher Education and Application Service Providers

- Broadcast IPTV campus-wide or host Video on Demand
- Deploying VoIP, Web 2.0 or client services
- SNMP traps and easy to read Sys log messages keep administrators well informed of any link changes or outages so corrective actions can be performed in timely manner.

Key vertical applications such as Media, Financial, Scientific, or Application Service Providers

- High bandwidth uplinks accommodate the most demanding applications
- High availability maintains system uptime with minimum downtime
- Applications can be configured in separate VLANs to provide security against unauthorized access
- Private VLAN Edge provides Layer 2 isolation between the ports within the same broadcast domain, only allowing communication with a given uplink*

Key Benefits

Robust Performance

- The HP 10Gb Ethernet BL-c Switch delivers robust 10Gb networking performance at a breakthrough price.
- Blade switches provide 10Gb switch to server links without the need for costly optics. This greatly lowers the barriers for 10Gb adoption.
- 200Gb (400Gb full duplex) aggregate switching capacity provides— a totally non-blocking internal matrix.
- Will support RDMA, TOE and iSCSI offload through the NC512m 10Gb Ethernet adapter

Server virtualization without the bottlenecks

- The 10Gb Ethernet BL-c Switch provides 10Gb of bandwidth to each server blade—allowing full utilization of multi-core server technology
- 10Gb to each server enables multiple applications to run on the same server without saturating data links.
- Full 10G switching fabric allows datacenters to gain the full benefit of blade technology to reduce implementation and operating expenses.

Full support for Layer 3 routing

- By adding Layer 3 routing at the enclosure level, network administrators now have more power, flexibility, and security capabilities at their command. Network traffic can be managed much more efficiently and broadcast traffic between servers is contained within the enclosure.
- Security features provide added protection for switch configuration data, while packet filtering helps secure and segment sensitive traffic or network access.
- Layer 3 routing with OSPF enhancements can reduce the number of broadcast domains, increasing network performance and efficiency.
- Layer 3 IP forwarding makes inter-VLAN routing much more scalable and efficient than equivalent layer 2 networks that rely on spanning tree alone.
- Easier management and troubleshooting is achieved by creating smaller "troubleshooting domains."
- Virtual Router Redundancy Protocol (VRRP) allows multiple switches to process traffic in an active-active configuration, allowing all switches in a VRRP group to process traffic simultaneously, ensuring maximum performance and fast, seamless failover.

High availability and resiliency

The 10Gb Ethernet BL-c Switch provides a full set of advanced high availability and resiliency features such as Spanning Tree, Rapid Spanning Tree, Multiple Spanning Tree and Uplink Failure Detection*.

- High availability ensures that mission critical traffic is not impacted in the unlikely case of a switch or power failure.

* Available with optional software release

- Hot Links* provides basic link redundancy with fast recovery for network topologies that require Spanning Tree to be turned off.*
- Uplink Failure Detection (UFD) supports network adapter teaming, and allows the switch to monitor specific uplink ports to detect link failures.
- Compatibility with Cisco® EtherChannel for trunking to non-HP devices.
- 802.1d Spanning Tree Protocol (STP) ensures that only one path to a destination is available at any one time by detecting loops and blocking switch ports as required.
- 802.1s Multiple Spanning Tree Protocol (MSTP) provides seamless integration, resiliency and availability for network topologies utilizing Virtual LANs (VLANs) into networks running 802.1s.
- Internet Group Management Protocol (IGMP) v3 Snooping* allows the switch to intercept IGMP packets to build multicast tables for hosts that want to receive or stop receiving multicast streams. This feature greatly increases the performance of networks and frees up network bandwidth for multicast applications such as video streaming.
- Compatibility with Cisco® PortFast feature allows a port to transition rapidly to forwarding

state upon bootup, without the usual Spanning Tree calculation period that may cause some applications to time out.

- DHCP opt82* – provides the underlying technology for the first implementation of BLADE’s ServerMobility™, in which an IP address would be “assigned” to a specific chassis/slot location, independent of the underlying physical server.

HP 10Gb Ethernet BL-c Switch deployment applications

- The HP 10Gb Ethernet BL-c Switch is the correct choice for datacenter applications looking for a high bandwidth low latency switch. Applications include the following:
- High Performance Computing: Medical Imaging, Visualization, Financial analytics, Technical computation clusters, Animation/Media rendering
- Multimedia: VoIP/IP PBX, VOD/IPTV, Video Surveillance, Gaming, Video Conferencing
- IT Consolidation: Server virtualization, Data/voice/video offerings, Web 2.0, Next Generation Networks, Security/Firewalls, IP SAN (iSCSI) for Storage, Backup, Disaster Recovery

• * Available with optional software release

10Gb switch Specifications Table

Performance and Form Factor

Blade Type	Double bay
Performance	200Gb switching fabric 256Mb SDRAM Universal Flash support
Port Configuration	64Mb Flash memory 16 Internal 10Gb Downlinks 4 External 10Gb XFP ports 1 Management Console Port
Media Types	XFP Fiber SR/LR

Management and Protocols

Management Features	Dual mode CLI - BLADEOS and iSCLI SNMP v1, v2c, v3 HTTP, HTTPS NTP sever support RMON
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Link Layer Discovery Protocol*

High Availability Features	Link Aggregation Protocol Uplink failure detection Unidirectional Link Detection (UDLD)* Spanning Tree Virtual Router Redundancy Protocol (VRRP)
Protocols Supported	SSH v2, TACACS+, RADIUS, 802.3, 802.3u, 802.3ab, 802.1AB*, 802.1d, 802.1s, 802.1w, 802.1p, 802.3ac, 802.1x, 802.3ad (LACP and Static Trunking), 802.3ah*, 802.1Q, IGMP Snooping(v1, v2 and v3)*, BOOTP and DHCP, IPv6 mgmt*

Deployment

Max per Enclosure	2
Options Available	XFP 850nm SR module – part number BN-CKM-SR (Available from BLADE Network Technologies) XFP 850nm SR module - PN 443756-B21 XFP 1310nm LR module - PN 443757-B21 HP Adv. Function Software (HP 10GbE BLc ADVd FNCT SW)— PN 485194-B21
Warranty - year(s) (parts/labor/onsite)	1-1-1

* Available with optional future software release

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<http://www.bladenetwork.net/Transceivers.html>

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- * Available with optional software release