



HPE FLEXNETWORK 7500X SWITCH SERIES



KEY FEATURES

- Higher bandwidth of 480 Gbps/slot and higher scalability with up to 288K MAC, up to 104K ARP, and up to 256K FIB (depending on the LPU and operational mode chosen) for enhanced [network switch](#) performance.
- Multiple interface options of 1/10/40/100GbE with higher port counts of up to 40 x 100G across the three models to meet varying network scale demands.
- Virtual Extensible LAN (VXLAN) with Ethernet VPN (BGP EVPN) allows greater flexibility, better performance with wirespeed, enhanced security, and better scalability.
- Enhanced programmability for faster time to service and integration into modern tools (Puppet/Chef/Ansible) with CLI, SNMPv2/v3, full NETCONF/YANG models, REST APIs, and scripting (Python).
- Comprehensive security approach at every layer including microsegmentation, which enables grouping of end points based on specific criteria.
- Enhanced Media Delivery Index (eMDI) to monitor audio and video service quality and locate faults.
- Multicast DNS (mDNS) for enabling end point devices to locate a device or service by name in small local networks without using preconfigured name servers.

PRODUCT OVERVIEW

The HPE FlexNetwork 7500X Switch Series is a versatile, multilayered, high-performance, modular switch for enterprise LAN edge, aggregation, and core layers.

The HPE FlexNetwork 7500X Switch Series combination of chassis, MPUs and LPUs offers 1/10/40/100GbE connectivity, with PoE/PoE+, meets existing and future requirements, Internet of Things (IoT), and others. Higher switching bandwidth (480 Gbps/slot) and L2/L3 routing services dramatically improve performance and increases support for mission-critical environments.

Customers can take advantage of Virtual Extensible LAN (VXLAN) and Ethernet VPN (BGP EVPN) to provide greater scalability and better utilization of available network paths and leverage HPE Intelligent Resilient Fabric (IRF) to enable flatter, more agile, and highly available networks.

Application telemetry provides real-time switch capacity and utilization while HPE Intelligent Management Center (IMC) provides a single view of the entire network. Support for IPv4/IPv6 and MPLS/VPLS features provide investment protection and an easy transition from IPv4 to IPv6 networks and ease of maintenance is assured with Graceful Insertion and Removal (GIR) and In-Service Software Update (ISSU).

Google™ enhanced RPC (gRPC) efficiently connects services within and between data centers and leverages pluggable support for health and performance monitoring, load balancing, tracing, and authentication. gRPC also connects computing devices, mobile applications, and browsers to back-end services over the last mile of a distributed architecture. HPE Intelligent Resilient Fabric (IRF) enables flatter and more agile networks.

FEATURES AND BENEFITS

Powerful performance

- The HPE FlexNetwork 7500X Switch Series offers up to 480 Gbps of switching capacity per slot (three times the switching capacity of HPE FlexNetwork 7500 Switch Series at 160 Gbps per slot).
- Supports a switching capacity of up to 9.6 Tbps for enhanced performance of mission-critical environments.
- The HPE FlexNetwork 7500X Switch Series is based on a distributed forwarding architecture, with one of several ASICs per line card responsible for forwarding decisions. The control plane, which can be made fully redundant with the addition of a secondary MPU, is used only for the initial learning (MAC, ARP, RIB...) before the information is propagated to each and every line card ASIC. This distributed forwarding architecture provides the best possible results in term of throughput, performance, and latency.

Highly resiliency

- The HPE FlexNetwork 7500X Switch Series offers high availability with redundant power modules, fan trays, hot-swappable interface modules, and power module self-protection mechanisms.
- In-Service Software Upgrade (ISSU) is available and HPE Intelligent Resilient Framework (IRF) virtualizes up to four physical switches into one for simpler, flatter, more agile, and highly available networks.
- Virtual Routing Redundancy Protocol (VRRP) creates redundant and highly available routed environments with groups of two routers, ensuring continuous packet forwarding in the event of a single failed router.
- Graceful Insertion and Removal (GIR) minimizes service interruption by instructing affected protocols to isolate the device for maintenance/upgrade and alter to the redundant path. GIR supports LACP, BGP, IS-IS, OSPF, and OSPFv3.

Scalability

- It offers up to 40 x 100GbE / 240 x 40GbE / 480 x 10GbE / 480 x 1GbE ports or a combination of these, along with PoE/PoE+ support for IP phones, cameras, and future high-density Internet of Things (IoT) deployments.
- These switches offer up to 288K MAC, 104K ARP, and 256K FIB (depending on the LPU and operational mode) for enhanced switch performance.

Robust quality of service (QoS)

- The HPE FlexNetwork 7500X Switch Series supports operations, administration, and maintenance (OAM), Rapid Ring Protection Protocol (RRPP), MPLS and VPLS, and In-Service Software Upgrade (ISSU) for business continuity and improving manageability.
- Microsegmentation enables the grouping of end points based on specific criteria for the application of a group-based policy, implemented by using PBR/QoS/Packet Filter.
- Enhanced Media Delivery Index (eMDI) monitors audio and video service quality. It locates faults by analyzing specific TCP/RTP packets of each node in an IP network in real time to solve packet loss, packet sequence errors, and jitters.
- Multicast DNS (mDNS) is a zero-configuration networking (zeroconf) protocol. It enables end point devices to automatically discover available services advertised by mDNS service providers without using preconfigured name servers such as DNS Multicast.



Simplified management

- The HPE FlexNetwork 7500X Switch Series can be seamlessly managed with HPE Intelligent Management Center (IMC) to provide end-to-end network transparency with a consistent network experience.
- Provides multiple management interfaces such as the console port, out-of-band management Ethernet port, and USB port. It also supports configuration and management from CLI or a general-purpose web-based manager.
- Single IP address to manage the whole IRF fabric, simplifying device and topology management, improving operating efficiency, and lowering network maintenance cost.
- Supports multiple access methods, including SNMPv1/v2c/v3, telnet, SSH 2.0, and SSL to facilitate centralized discovery, monitoring, and secure management of networking devices. It also provides complete session logging to aid problem identification and resolution.
- Supports entire set of programming tools from legacy CLI/SNMP, to full NETCONF/YANG model. REST APIs combined with scripting (Python) allow the inclusion of these switches into modern toolchains (Puppet/Chef/Ansible playbooks).
- Supports OpenFlow that enables integration with mainstream cloud platforms or a third-party controller for flexible network customization and automated management.

Comprehensive security

- The HPE FlexNetwork 7500X Switch Series provides Flexible authentication options including IEEE 802.1X, MAC, and Web Authentication and Endpoint Admission Defense, delivering greater security and policy-driven application authentication.
- Advanced distributed denial of service (DDoS) protection, such as DHCP Snooping, IP Source Guard, and ARP Protection, and flexible traffic controls, such as policy-based routing, QoS, and ACLs are available to manage end-to-end application priorities.

Layer 2 switching and Layer 3 routing

- Supports IEEE 802.1ad QinQ and selective QinQ that increase scalability by providing a hierarchical structure
- Supports jumbo frames with a frame size of up to 9216 bytes, improving the performance of large data transfers
- Supports Device Link Detection Protocol (DLDP) that monitors link connectivity and shuts down ports at both ends if unidirectional traffic is detected, preventing loops in STP-based networks
- Includes Virtual Extensible LAN (VXLAN) and Ethernet VPN (EVPN) at no additional cost that allows greater flexibility to integrate into existing networks, better scalability without redesigning the underlay network, enhanced security to restrict attacks, and improved performance, especially in spine-leaf architectures

Best-in-class TCO

No hidden costs with the license-free L2 / L3 feature set that includes full IPv4 (unicast/multicast), IPv6 (unicast/multicast), MPLS (MPLS, MPLS VPN, VPLS), and advanced ACLs/QoS.

Warranty and support

- 1-year warranty
See [hpe.com/networking/warrantysummary](https://www.hpe.com/networking/warrantysummary) for warranty and support information included with your product purchase.
- Software releases
To find software for your product, see [hpe.com/networking/support](https://www.hpe.com/networking/support); for details on the software releases available with your product purchase, see [hpe.com/networking/warrantysummary](https://www.hpe.com/networking/warrantysummary)



HPE FLEXNETWORK 7500X SWITCH SERIES



Specifications	HPE FlexNetwork 7510X PoE Ethernet Switch Chassis (R8N47A)	HPE FlexNetwork 7506X PoE Ethernet Switch Chassis (R8N48A)	HPE FlexNetwork 7503X Ethernet Switch Chassis (R8N49A)
Included accessories	1 HPE 7510X Fan Tray Assembly (JD216A)	1 HPE 7506X Fan Tray Assembly (R8N60A)	1 HPE 7503X Fan Tray Assembly (R8N61A)
I/O ports and slots	10 I/O module slots Supports a maximum of 40 100GbE ports or 240 40GbE ports or 480 10GbE ports or 480 1GbE ports or 480 fiber Ethernet ports, or a combination	6 I/O module slots Supports a maximum of 24 100GbE ports or 144 40GbE ports or 288 10GbE ports or 288 1GbE ports or 288 fiber Ethernet ports, or a combination	3 I/O module slots Supports a maximum of 12 100GbE ports or 72 40GbE ports or 144 10GbE ports or 144 1GbE ports or 144 fiber Ethernet ports, or a combination
Additional ports and slots	2 switch fabric slots	2 switch fabric slots	1 switch fabric slot (2 half slots)
Power supplies	2 power supply slots 1 minimum power supply required (ordered separately)	2 power supply slots 1 minimum power supply required (ordered separately)	2 power supply slots 1 minimum power supply required (ordered separately)
Fan tray	Includes: 1 x JD216A 1 fan tray slot 6 fans of 92 mm diameter 4 fans of 120 mm diameter 662 CFM air flow rate (max.)	Includes: 1 x R8N60A 1 fan tray slot 9 fans of 92 mm diameter 495 CFM air flow rate (max.)	Includes: 1 x R8N61A 1 fan tray slot 2 fans of 120 mm diameter 166 CFM air flow rate (max.)
Physical characteristics			
Dimensions	17.17 in. (w) x 16.54 in. (d) x 27.87 in. (h) 43.6 cm (w) X 42 cm (d) X 70.8 cm (h) (16 RU height)	17.17 in. (w) x 16.54 in. (d) x 22.64 in. (h) 43.6 cm (w) X 42 cm (d) X 57.5 cm (h) (13 RU height)	17.17 in. (w) x 16.54 in. (d) x 8.5 in. (h) 43.6 cm (w) X 42 cm (d) X 21.6 cm (h) (5 RU height)
Weight	< 95 kg shipping weight	< 75 kg shipping weight	< 35 kg shipping weight
MPU flash / SDRAM	Flash 2 GB SDRAM 4 GB	Flash 2 GB SDRAM 4 GB	Flash 2 GB SDRAM 2 GB
Mounting and enclosure	Mounts in an EIA-standard 19 in. rack or other equipment cabinets (hardware included); horizontal surface mounting only	Mounts in an EIA-standard 19 in. rack or other equipment cabinets (hardware included); horizontal surface mounting only	Mounts in an EIA-standard 19 in. rack or other equipment cabinets (hardware included); horizontal surface mounting only
Reliability			
Availability	99.999%	99.999%	99.999%
Environment			
Operating temperature	32°F to 113°F (0°C to 45°C)	32°F to 113°F (0°C to 45°C)	32°F to 113°F (0°C to 45°C)
Operating relative humidity	10% to 95%, noncondensing	10% to 95%, noncondensing	10% to 95%, noncondensing
Nonoperating/storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/storage relative humidity	5% to 95%, noncondensing	5% to 95%, noncondensing	5% to 95%, noncondensing
Acoustic	Low-speed fan: 53.5 dB, high-speed fan: 56.7 dB	Low-speed fan: 53.6 dB, high-speed fan: 57.7 dB	Low-speed fan: 52.2 dB, high-speed fan: 56.0 dB
Heat dissipation (maximum)	8,163 BTU/hour	5,345 BTU/hour	2,173 BTU/hour
Electrical characteristics			
Frequency	50/60 Hz	50/60 Hz	50/60 Hz
Voltage	100-120 / 200-240 VAC, rated (depending on power supply chosen)	100-120 / 200-240 VAC, rated (depending on power supply chosen)	100-120 / 200-240 VAC, rated (depending on power supply chosen)
Current	16A/117A	16A/117A	10A/54A
Power output	1,400W	1,400W	650W
Power consumption (maximum)	2,978W	1,950W	793W
Notes	Based on a common power supply of 1,400W AC	Based on a common power supply of 1,400W AC	Based on a common power supply of 650W AC



HPE FLEXNETWORK 7500X SWITCH SERIES (CONTINUED)

Specifications	HPE FlexNetwork 7510X PoE Ethernet Switch Chassis (R8N47A)	HPE FlexNetwork 7506X PoE Ethernet Switch Chassis (R8N48A)	HPE FlexNetwork 7503X Ethernet Switch Chassis (R8N49A)
Safety	UL 62368-1; IEC 62368-1; CAN/CSA-C22.2 No. 62368-1; EN 62368-1/A11	UL 62368-1; IEC 62368-1; CAN/CSA-C22.2 No. 62368-1; EN 62368-1/A11	UL 62368-1; IEC 62368-1; CAN/CSA-C22.2 No. 62368-1; EN 62368-1/A11
Emissions	VCCI Class A; FCC Part 15 Subpart B Class A; ICES-003 Class A; EN 55032 Class A; CISPR 32 Class A; AS/NZS CISPR 32 Class A; EN 61000-3-2; EN 61000-3-3	VCCI Class A; FCC Part 15 Subpart B Class A; ICES-003 Class A; EN 55032 Class A; CISPR 32 Class A; AS/NZS CISPR 32 Class A; EN 61000-3-2; EN 61000-3-3	VCCI Class A; FCC Part 15 Subpart B Class A; ICES-003 Class A; EN 55032 Class A; CISPR 32 Class A; AS/NZS CISPR 32 Class A; EN 61000-3-2; EN 61000-3-3
Immunity			
Generic	ETSI EN 300 386	ETSI EN 300 386	ETSI EN 300 386
EN	EN55035	EN55035	EN55035
ESD	EN 61000-4-2	EN 61000-4-2	EN 61000-4-2
Radiated	EN 61000-4-3	EN 61000-4-3	EN 61000-4-3
EFT/burst	EN 61000-4-4	EN 61000-4-4	EN 61000-4-4
Surge	EN 61000-4-5	EN 61000-4-5	EN 61000-4-5
Conducted	EN 61000-4-6	EN 61000-4-6	EN 61000-4-6
Power frequency magnetic field	IEC 61000-4-8	IEC 61000-4-8	IEC 61000-4-8
Voltage dips and interruptions	EN 61000-4-11	EN 61000-4-11	EN 61000-4-11
Management	HPE IMC; command-line interface; web browser; out-of-band management (serial RS-232c); SNMP manager; telnet; terminal interface (serial RS-232c); modem interface; IEEE 802.3 Ethernet MIB; Ethernet interface MIB	HPE IMC; command-line interface; web browser; out-of-band management (serial RS-232c); SNMP manager; telnet; terminal interface (serial RS-232c); modem interface; IEEE 802.3 Ethernet MIB; Ethernet interface MIB	HPE IMC; command-line interface; web browser; out-of-band management (serial RS-232c); SNMP manager; telnet; terminal interface (serial RS-232c); modem interface; IEEE 802.3 Ethernet MIB; Ethernet interface MIB
Notes	RFCs supported only in Comware v7: 1541, 1542, 1981, 2080, 2460, 2464, 2473, 2474, 2545, 2711, 2863, 2868, 3315, 3413, 3416, 3484, 3575, 3736, 3810, 3956, 4271, 4291, 4292, 4293, 4443, 4552, 4607, 4659, 4798, 4861, 4862, 5080, 5095, 5340, 5492, 5905, and 6192 Comware v7 MPU HPE 7510X Fabric/MPU Type C (R8N50A) only supports these LPU: <ul style="list-style-type: none"> Comware v7 LPUs—R8N43A, R8N57A, R8N58A, R8N53A, R8N54A, R8N55A, R8N56A, JH210A, JH211A, JH212A, JH213A, JH431A Performance depends on the MPU/fabric installed, and when installed with two R8N50A, the performances are as follows: up to 7,200 MPPS for packet performance and 9.6 Tbps for total switching capacity. Main control board / power module adopts redundancy and supports hot swapping.	RFCs supported only in Comware v7: 1541, 1542, 1981, 2080, 2460, 2464, 2473, 2474, 2545, 2711, 2863, 2868, 3315, 3413, 3416, 3484, 3575, 3736, 3810, 3956, 4271, 4291, 4292, 4293, 4443, 4552, 4607, 4659, 4798, 4861, 4862, 5080, 5095, 5340, 5492, 5905, and 6192 Comware v7 MPU HPE 7506X Fabric/MPU Type C (R8N51A) only supports these LPU: <ul style="list-style-type: none"> Comware v7 LPUs—R8N43A, R8N57A, R8N58A, R8N53A, R8N54A, R8N55A, R8N56A, JH210A, JH211A, JH212A, JH213A, JH431A Performance depends on the MPU/fabric installed, and when installed with two R8N51A, the performances are as follows: up to 4,320 MPPS for packet performance and 5.76 Tbps for total switching capacity. Main control board / power supply / centralized monitoring board / fan frame module adopts redundancy and supports hot swapping.	RFCs supported only in Comware v7: 1541, 1542, 1981, 2080, 2460, 2464, 2473, 2474, 2545, 2711, 2863, 2868, 3315, 3413, 3416, 3484, 3575, 3736, 3810, 3956, 4271, 4291, 4292, 4293, 4443, 4552, 4607, 4659, 4798, 4861, 4862, 5080, 5095, 5340, 5492, 5905, and 6192 Comware v7 MPU HPE 7503X Supervisor Engine Type A (R8N52A) only supports these LPU: <ul style="list-style-type: none"> Comware v7 LPUs—R8N43A, R8N57A, R8N58A, R8N53A, R8N54A, R8N55A, R8N56A, JH210A, JH211A, JH212A, JH213A, JH431A Performance depends on the MPU/fabric installed, and when installed with two R8N52A, the performances are as follows: up to 2,160 MPPS for packet performance and 2.88 Tbps for total switching capacity. Main control board / power module supports hot swapping.
Services	Visit the Hewlett Packard Enterprise website at hpe.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, contact your local HPE sales office.	Visit the HPE website at hpe.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, contact your local HPE sales office.	Visit the HPE website at hpe.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, contact your local HPE sales office.



Standards and protocols

(Applies to all products in series)

Specifications	HPE FlexNetwork 7510X PoE Ethernet Switch Chassis (R8N47A)	HPE FlexNetwork 7506X PoE Ethernet Switch Chassis (R8N48A)	HPE FlexNetwork 7503X Ethernet Switch Chassis (R8N49A)
BGP	RFC 1771 BGPv4 RFC 1772 Application of the BGP RFC 1997 BGP Communities Attribute RFC 1998 An Application of the BGP Community Attribute in Multi-Home Routing RFC 2385 BGP Session Protection via TCP MD5 RFC 2439 BGP Route Flap Damping RFC 2796 BGP Route Reflection RFC 2858 BGP-4 Multi-Protocol Extensions RFC 2918 Route Refresh Capability	RFC 3065 Autonomous System Confederations for BGP RFC 3392 Capabilities Advertisement with BGP-4 RFC 4271 A Border Gateway Protocol 4 (BGP-4) RFC 4272 BGP Security Vulnerabilities Analysis RFC 4273 Definitions of Managed Objects for BGP-4 RFC 4274 BGP-4 Protocol Analysis RFC 4275 BGP-4 MIB Implementation Survey	RFC 4276 BGP-4 Implementation Report RFC 4277 Experience with the BGP-4 Protocol RFC 4360 BGP Extended Communities Attribute RFC 4456 BGP Route Reflection: An Alternative to Full Mesh Internal BGP (IBGP) RFC 5291 Outbound Route Filtering Capability for BGP-4 RFC 5292 Address-Prefix-Based Outbound Route Filter for BGP-4 RFC 5492 Capabilities Advertisement with BGP-4
Denial of service protection	Automatic filtering of well-known denial-of-service packets	CPU DoS Protection	Rate Limiting by ACLs
Device management	RFC 1157 SNMPv1/v2c RFC 1305 NTPv3 RFC 1902 (SNMPv2) RFC 2579 (SMIPv2 Text Conventions)	RFC 2580 (SMIPv2 Conformance) RFC 2580 (SMIPv2 Conformance) RFC 2819 (RMON groups Alarm, Event, History, and Statistics only) and Telnet	Multiple Configuration Files Multiple Software Images SSHv1/SSHv2 TACACS/TACACS+
General protocols	IEEE 802.1ad QinQ IEEE 802.1ag Service Layer OAM IEEE 802.1AX-2008 Link Aggregation IEEE 802.1p Priority IEEE 802.1Q VLANs IEEE 802.1s Multiple Spanning Trees IEEE 802.1w Rapid Reconfiguration of Spanning Tree IEEE 802.1X PAE IEEE 802.3ab 1000BASE-T IEEE 802.3ac (VLAN Tagging Extension) IEEE 802.3ad Link Aggregation Control Protocol (LACP) IEEE 802.3ae 10GbE IEEE 802.3af Power over Ethernet IEEE 802.3ah Ethernet in First Mile over Point-to-Point Fiber (EFMF) IEEE 802.3at IEEE 802.3ba 40 and 100 Gigabit Ethernet Architecture IEEE 802.3u 100BASE-X IEEE 802.3x Flow Control IEEE 802.3z 1000BASE-X RFC 768 UDP RFC 783 TFTP Protocol (revision 2) RFC 791 IP RFC 792 ICMP RFC 793 TCP RFC 826 ARP RFC 854 Telnet RFC 894 IP over Ethernet RFC 903 RARP	RFC 906 TFTP Bootstrap RFC 950 Internet Standard Subnetting Procedure RFC 951 BOOTP RFC 959 File Transfer Protocol (FTP) RFC 1027 Proxy ARP RFC 1035 Domain Implementation and Specification RFC 1058 RIPv1 RFC 1142 OSI IS-IS Intra-domain Routing Protocol RFC 1195 OSI IS-IS for IP and Dual Environments RFC 1213 Management Information Base for Network Management of TCP/IP-based Internet RFC 1256 ICMP Router Discovery Protocol (IRDP) RFC 1305 NTPv3 RFC 1350 TFTP Protocol (revision 2) RFC 1393 Traceroute Using an IP Option RFC 1519 CIDR RFC 1531 Dynamic Host Configuration Protocol RFC 1533 DHCP Options and BOOTP Vendor Extensions	RFC 1591 DNS (client only) RFC 1624 Incremental Internet Checksum RFC 1701 Generic Routing Encapsulation RFC 1721 RIPv2 Analysis RFC 1723 RIPv2 RFC 1812 IPv4 Routing RFC 2082 RIPv2 MD5 Authentication RFC 2091 Trigger RIP RFC 2131 DHCP RFC 2138 Remote Authentication Dial-In User Service (RADIUS) RFC 2236 IGMP Snooping RFC 2338 VRRP RFC 2453 RIPv2 RFC 2460 IPv6 RFC 2464 Transmission of IPv6 Packets over Ethernet Networks RFC 2474 Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers RFC 2644 Directed Broadcast Control RFC 2711 IPv6 Router Alert Option RFC 2763 Dynamic Name-to-System ID mapping support RFC 2784 Generic Routing Encapsulation (GRE) RFC 2865 Remote Authentication Dial-In User Service (RADIUS)



Standards and protocols (continued)

(Applies to all products in series)

Specifications	HPE FlexNetwork 7510X PoE Ethernet Switch Chassis (R8N47A)	HPE FlexNetwork 7506X PoE Ethernet Switch Chassis (R8N48A)	HPE FlexNetwork 7503X Ethernet Switch Chassis (R8N49A)
General protocols (continued)	RFC 2868 RADIUS Attributes for Tunnel Protocol Support RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS RFC 2973 IS-IS Mesh Groups RFC 3277 IS-IS Transient packet drop attack avoidance RFC 3413 Simple Network Management Protocol (SNMP) Applications RFC 3416 Protocol Operations for SNMP RFC 3484 Default Address Selection for Internet Protocol version 6 (IPv6) RFC 3567 Intermediate System to Intermediate System (IS-IS) Cryptographic Authentication RFC 3719 Recommendations for Interoperable Networks using Intermediate System to Intermediate System (IS-IS) RFC 3736 Stateless Dynamic Host Configuration Protocol (DHCP) Service for IPv6	RFC 3784 IS-IS TE support RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit RFC 3787 Recommendations for Interoperable IP Networks using Intermediate System to Intermediate System (IS-IS) RFC 3847 Restart signaling for IS-IS Requirements RFC 4251 The Secure Shell (SSH) Protocol Architecture RFC 4271 A Border Gateway Protocol 4 (BGP-4) RFC 4291 IP Version 6 Addressing Architecture RFC 4292 IP Forwarding Table MIB RFC 4293 Management Information Base for the Internet Protocol (IP) RFC 4443 Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification RFC 4486 Subcodes for BGP Cease Notification Message	RFC 4552 Authentication/Confidentiality for OSPFv3 RFC 4607 Source-Specific Multicast for IP RFC 4659 BGP-MPLS IP Virtual Private Network (VPN) Extension for IPv6 VPN RFC 4798 Connecting IPv6 Islands over IPv4 MPLS Using IPv6 Provider Edge Routers (6PE) RFC 4861 Neighbor Discovery for IP version 6 (IPv6) RFC 4862 IPv6 Stateless Address Auto-configuration RFC 4941 Privacy Extensions for Stateless Address Auto-configuration in IPv6 RFC 5095 Deprecation of Type 0 Routing Headers in IPv6 RFC 5130 A Policy Control Mechanism in IS-IS Using Administrative Tags RFC 5340 OSPF for IPv6 RFC 5492 Capabilities Advertisement with BGP-4 RFC 5905 Network Time Protocol Version 4: Protocol and Algorithms Specification
IP multicast	RFC 2236 IGMPv2 RFC 2283 Multiprotocol Extensions for BGP-4 RFC 2362 PIM Sparse Mode RFC 3376 IGMPv3 RFC 3446 Anycast Rendezvous Point (RP) mechanism using Protocol Independent Multicast (PIM) and Multicast Source Discovery Protocol (MSDP) RFC 3618 Multicast Source Discovery Protocol (MSDP)	RFC 3973 PIM Dense Mode RFC 4541 Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches RFC 4601 PIM Sparse Mode RFC 4604 Using Internet Group Management Protocol Version 3 (IGMPv3) and Multicast Listener Discovery Protocol Version 2 (MLDv2) for Source-Specific Multicast	RFC 4605 IGMP/MLD Proxying RFC 4607 Source-Specific Multicast for IP RFC 4610 Anycast-RP Using Protocol Independent Multicast (PIM) RFC 5059 Bootstrap Router (BSR) Mechanism for Protocol Independent Multicast (PIM)
IPv6	RFC 1886 DNS Extension for IPv6 Allocation Architecture RFC 1981 IPv6 Path MTU Discovery RFC 2080 RIPng for IPv6 RFC 2081 RIPng Protocol Applicability Statement RFC 2292 Advanced Sockets API for IPv6 RFC 2373 IPv6 Addressing Architecture RFC 2375 IPv6 Multicast Address Assignments RFC 2460 IPv6 Specification RFC 2461 IPv6 Neighbor Discovery RFC 2462 IPv6 Stateless Address Auto-configuration RFC 2463 ICMPv6	RFC 2464 Transmission of IPv6 over Ethernet Networks RFC 2473 Generic Packet Tunneling in IPv6 Reserved IPv6 Subnet Anycast Addresses RFC 2529 Transmission of IPv6 Packets over IPv4 RFC 2545 Use of MP-BGP-4 for IPv6 RFC 2553 Basic Socket Interface Extensions for IPv6 RFC 2710 Multicast Listener Discovery (MLD) for IPv6 RFC 2740 OSPFv3 for IPv6 RFC 2767 Dual stacks IPv4 and IPv6 RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers	RFC 3056 Connection of IPv6 Domains via IPv4 Clouds RFC 3307 IPv6 Multicast Address Allocation RFC 3315 DHCPv6 (client and relay) RFC 3484 Default Address Selection for IPv6 RFC 3513 IPv6 Addressing Architecture RFC 3736 Stateless Dynamic Host Configuration Protocol (DHCP) Service for IPv6 RFC 3810 MLDv2 for IPv6 RFC 4214 Intra-Site Automatic Tunnel Addressing Protocol (ISATAP) RFC 4861 IPv6 Neighbor Discovery RFC 4862 IPv6 Stateless Address Auto-configuration



Standards and protocols (continued)

(Applies to all products in series)

Specifications	HPE FlexNetwork 7510X PoE Ethernet Switch Chassis (R8N47A)	HPE FlexNetwork 7506X PoE Ethernet Switch Chassis (R8N48A)	HPE FlexNetwork 7503X Ethernet Switch Chassis (R8N49A)
MIBs	RFC 1157 A Simple Network Management Protocol (SNMP) RFC 1213 MIB II RFC 1215 A Convention for Defining Traps for use with the SNMP RFC 1229 Interface MIB Extensions RFC 1493 Bridge MIB RFC 1573 SNMP MIB II RFC 1643 Ethernet MIB RFC 1657 BGP-4 MIB RFC 1724 RIPv2 MIB RFC 1757 Remote Network Monitoring MIB RFC 1907 SNMPv2 MIB RFC 2011 SNMPv2 MIB for IP RFC 2012 SNMPv2 MIB for TCP RFC 2013 SNMPv2 MIB for UDP RFC 2096 IP Forwarding Table MIB	RFC 2233 Interfaces MIB RFC 2452 IPV6-TCP-MIB RFC 2454 IPV6-UDP-MIB RFC 2465 IPV6 MIB RFC 2466 ICMPv6 MIB RFC 2571 SNMP Framework MIB RFC 2572 SNMP-MPD MIB RFC 2573 SNMP-Notification MIB RFC 2573 SNMP-Target MIB RFC 2578 Structure of Management Information Version 2 (SMIv2) RFC 2580 Conformance Statements for SMIv2 RFC 2618 RADIUS Client MIB RFC 2620 RADIUS Accounting MIB RFC 2665 Ethernet-Like-MIB RFC 2668 802.3 MAU MIB RFC 2674 802.1p and IEEE 802.1Q Bridge MIB RFC 2787 VRRP MIB RFC 2819 RMON MIB	RFC 2925 Ping MIB RFC 2932IP (Multicast Routing MIB) RFC 2933 IGMP MIB RFC 3414 SNMP-User-based-SM MIB RFC 3415 SNMP-View-based-ACM MIB RFC 3417 Simple Network Management Protocol (SNMP) over IEEE 802 Networks RFC 3418 MIB for SNMPv3 RFC 3621 Power Ethernet MIB RFC 3813 MPLS LSR MIB RFC 3814 MPLS FTN MIB RFC 3815 MPLS LDP MIB RFC 3826 AES for SNMP's USM MIB RFC 4133 Entity MIB (Version 3) RFC 4444 Management Information Base for Intermediate System to Intermediate System (IS-IS)
MPLS	RFC 2205 Resource Reservation Protocol RFC 2209 Resource Reservation Protocol (RSVP) RFC 2702 Requirements for Traffic Engineering Over MPLS RFC 2858 Multiprotocol Extensions for BGP-4 RFC 2961 RSVP Refresh Overhead Reduction Extensions RFC 3031 Multiprotocol Label Switching Architecture RFC 3032 MPLS Label Stack Encoding RFC 3107 Carrying Label Information in BGP-4 RFC 3209 RSVP-TE: Extensions to RSVP for LSP Tunnels	RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP) RFC 3487 Graceful Restart Mechanism for LDP RFC 3564 Requirements for Support of Differentiated Service-aware MPLS Traffic Engineering RFC 4364 BGP/MPLS IP Virtual Private Networks (VPNs) RFC 4379 Detecting Multi-Protocol Label Switched (MPLS) Data Plane Failures RFC 4447 Pseudowire Setup and Maintenance Using LDP	RFC 4448 Encapsulation Methods for Transport of Ethernet over MPLS Networks RFC 4664 Framework for Layer 2 Virtual Private Networks RFC 4665 Service Requirements for Layer 2 Provider-Provisioned Virtual Private Networks RFC 4761 Virtual Private LAN Service (VPLS) Using BGP for Auto-Discovery and Signaling RFC 4762 Virtual Private LAN Service (VPLS) Using Label Distribution Protocol (LDP) Signaling RFC 5036 LDP Specification
Network management	IEEE 802.1AB Link Layer Discovery Protocol (LLDP) RFC 1155 Structure of Management Information RFC 1157 SNMPv1 RFC 1448 Protocol Operations for version 2 of the Simple Network Management Protocol (SNMPv2)	RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm), and 9 (events) RFC 3176 sFlow® RFC 3411 SNMP Management Frameworks	RFC 3412 SNMPv3 Message Processing RFC 3414 SNMPv3 User-based Security Model (USM) RFC 3415 SNMPv3 View-based Access Control Model (VACM) ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)
OSPF	RFC 1245 OSPF protocol analysis RFC 1246 Experience with OSPF RFC 1765 OSPF Database Overflow RFC 2328 OSPFv2 RFC 2370 OSPF Opaque LSA Option RFC 3101 OSPF NSSA	RFC 3137 OSPF Stub Router Advertisement RFC 3623 Graceful OSPF Restart RFC 3630 Traffic Engineering Extensions to OSPFv2 RFC 4061 Benchmarking Basic OSPF Single Router Control Plane Convergence RFC 4062 OSPF Benchmarking Terminology and Concepts RFC 4063 Considerations When Using Basic OSPF Convergence Benchmarks	RFC 4222 Prioritized Treatment of Specific OSPF Version 2 Packets and Congestion Avoidance RFC 4577 OSPF as the Provider/Customer Edge Protocol for BGP/MPLS IP Virtual Private Networks (VPNs) RFC 4811 OSPF Out-of-Band LSDB Resynchronization RFC 4812 OSPF Restart Signaling RFC 4813 OSPF Link-Local Signaling RFC 4940 IANA Considerations for OSPF



Standards and protocols (continued)

(Applies to all products in series)

Specifications	HPE FlexNetwork 7510X PoE Ethernet Switch Chassis (R8N47A)	HPE FlexNetwork 7506X PoE Ethernet Switch Chassis (R8N48A)	HPE FlexNetwork 7503X Ethernet Switch Chassis (R8N49A)
QoS/CoS	IEEE 802.1p (CoS) RFC 1349 Type of Service on the Internet Protocol Suite		RFC 2474 DSCP DiffServ RFC 2475 DiffServ Architecture RFC 2597 DiffServ Assured Forwarding (AF) RFC 2598 DiffServ Expedited Forwarding (EF)
Security	IEEE 802.1X Port-Based Network Access Control RFC 1321 The MD5 Message-Digest Algorithm RFC 1334 PPP Authentication Protocols (PAP) RFC 1492 TACACS+ RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP) RFC 2082 RIP-2 MD5 Authentication	RFC 2104 Keyed-Hashing for Message Authentication RFC 2408 Internet Security Association and Key Management Protocol (ISAKMP) RFC 2409 The Internet Key Exchange (IKE) RFC 2716 PPP EAP TLS Authentication Protocol RFC 2865 RADIUS Authentication RFC 2866 RADIUS Accounting RFC 2867 RADIUS Accounting	Modifications for Tunnel Protocol Support RFC 2868 RADIUS Attributes for Tunnel Protocol Support RFC 2869 RADIUS Extensions RFC 5080: Common Remote Authentication Dial-In User Service (RADIUS) Implementation issues and Suggested Fixes Access Control Lists (ACLs) Guest VLAN For IEEE 802.1X MAC Authentication Port Security SSHv1/SSHv2
VPN	RFC 2403—HMAC-MD5-96 RFC 2404—HMAC-SHA1-96 RFC 2405—DES-CBC Cipher algorithm	RFC 2407—Domain of interpretation RFC 2547 BGP/MPLS VPNs RFC 2917 A Core MPLS IP VPN Architecture	RFC 3947—Negotiation of NAT-Traversal in the IKE RFC 4302—IP Authentication Header (AH) RFC 4303—IP Encapsulating Security Payload (ESP)
IPSec	RFC 1828 IP Authentication using Keyed MD5 RFC 1829 The ESP DES-CBC Transform RFC 2085 HMAC-MD5 IP Authentication with Replay Prevention	RFC 2401 IP Security Architecture RFC 2402 IP Authentication Header RFC 2406 IP Encapsulating Security Payload	RFC 2410—The NULL Encryption Algorithm and its use with IPSec RFC 2411 IP Security Document Roadmap

HPE FLEXNETWORK 7500X SWITCH SERIES ACCESSORIES**Management Modules**

HPE FlexNetwork 7503X Type A Main Processing Unit (R8N52A)
HPE FlexNetwork 7506X Type C Fabric/Main Processing Unit (R8N51A)
HPE FlexNetwork 7510X Type C Fabric/Main Processing Unit (R8N50A)

Ethernet Modules

HPE FlexNetwork 7500X 48x10G SFP+ SG Mod (R8R43A)
HPE FlexNetwork 7500X 24x40G QSFP+ SG Mod (R8N57A)
HPE FlexNetwork 7500X 12x40G/4x100G QSFP28 SG Mod (R8N58A)
HPE FlexNetwork 7500 44p GbE/4p 10GbE SE Mod (JH210A)
HPE FlexNetwork 7500 24p GbE/4p 10GbE SE Mod (JH211A)
HPE FlexNetwork 7500 48p 1000BASE-T SE Mod (JH212A)
HPE FlexNetwork 7500 48p 1000BASE-T w/PoE+ SE Mod (JH213A)
HPE FlexNetwork 7500 44P G/4P 10G SE Mod (JH431A)

SFP transceivers

HPE X120 1G SFP LC SX Transceiver (JD118B)
HPE X120 1G SFP LC LX Transceiver (JD119B)
HPE X120 1G SFP RJ45 T Transceiver (JD089B)
HPE X120 1G SFP LC BX 10-D Transceiver (JD099B)
HPE X120 1G SFP LC BX 10-U Transceiver (JD098B)
HPE X120 1G SFP LC LH100 Transceiver (JD103A)



HPE FLEXNETWORK 7500X SWITCH SERIES ACCESSORIES (CONTINUED)

SFP+ transceivers

HPE FlexNetwork X130 10G SFP+ LC SR Transceiver (JD092B)
 HPE FlexNetwork X130 10G SFP+ LC LR Transceiver (JD094B)
 HPE FlexNetwork X130 10G SFP+ LC ER 40km Transceiver (JG234A)
 HPE FlexNetwork X130 10G SFP+ LC LH 80km XCVR (JG915A)
 HPE FlexNetwork X130 10G SFP+ LC BiDi 10-U XCVR (JL737A)
 HPE FlexNetwork X130 10G SFP+ LC BiDi 10-D XCVR (JL738A)
 HPE FlexNetwork X130 10G SFP+ LC BiDi 40-U XCVR (JL739A)
 HPE FlexNetwork X130 10G SFP+ LC BiDi 40-D XCVR (JL740A)
 HPE FlexNetwork X240 10G SFP+ to SFP+ 3m DA Cable (JD097C)
 HPE FlexNetwork X240 SFP+ to SFP+ 5m DAC Cable (JG081C)
 HPE FlexNetwork X240 10G SFP+ to SFP+ 0.65m DA Cable (JD095C)
 HPE FlexNetwork X240 10G SFP+ to SFP+ 1.2m DA Cable (JD096C)
 HPE FlexNetwork X240 10G SFP+ to SFP+ 7m DAC Cable (JC784C)

QSFP+ transceivers

HPE FlexNetwork X140 40G QSFP+ MPO SR4 XCVR (JG325B)
 HPE FlexNetwork X240 40G QSFP+ QSFP+ 1m DAC Cable (JG326A)
 HPE FlexNetwork X240 40G QSFP+ QSFP+ 3m DAC Cable (JG327A)
 HPE FlexNetwork X240 40G QSFP+ QSFP+ 5m DAC Cable (JG328A)
 HPE FlexNetwork X240 QSFP+ 4x10G SFP+ 1m DAC Cable (JG329A)
 HPE FlexNetwork X240 QSFP+ 4x10G SFP+ 3m DAC Cable (JG330A)
 HPE FlexNetwork X240 QSFP+ 4x10G SFP+ 5m DAC Cable (JG331A)
 HPE FlexNetwork X140 40G QSFP+ LC LR4 SM XCVR (JG661A)
 HPE FlexNetwork X140 40G QSFP+ CSR4 300m XCVR (JG709A)
 HPE FlexNetwork X140 40G QSFP+ LC BiDi 100m MM XCVR (JL251A)
 HPE FlexNetwork X140 40G QSFP+ LC LR4L 2km SM XCVR (JL286A)
 HPE FlexNetwork X140 40G QSFP+ LC ER4 40km SM XCVR (JL306A)
 HPE FlexNetwork X2A0 40G QSFP+ 7m AOC Cable (JL287A)
 HPE FlexNetwork X2A0 40G QSFP+ 10m AOC Cable (JL288A)
 HPE FlexNetwork X2A0 40G QSFP+ 20m AOC Cable (JL289A)

QSFP28 transceivers

HPE FlexNetwork X150 100G QSFP28 SR4 100m MM XCVR (JL274A)
 HPE FlexNetwork X150 100G QSFP28 LC LR4 10km SM XCVR (JL275A)
 HPE FlexNetwork X150 100G QSFP28 CWDM4 2km SM XCVR (JH673A)
 HPE FlexNetwork X150 100G QSFP28 SWDM4 100m MM XCVR (JH419A)
 HPE FlexNetwork X150 100G QSFP28 eSR4 300m MM XCVR (JH672A)
 HPE FlexNetwork X150 100G QSFP28 PSM4 500m SM XCVR (JH420A)
 HPE FlexNetwork X240 100G QSFP28 1m DAC Cable (JL271A)
 HPE FlexNetwork X240 100G QSFP28 3m DAC Cable (JL272A)

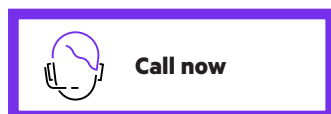
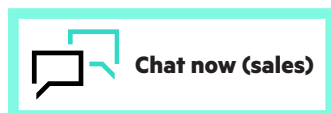
Power supplies

HPE FlexNetwork 7503/7506/7506V 650W AC PSU (JH215A)
 HPE FlexNetwork 7502 300W AC Power Supply (JD226A)
 HPE FlexNetwork 7500 650W AC Power Supply (JD217A)
 HPE FlexNetwork 7500 1400W AC Power Supply (JD218A)
 HPE FlexNetwork 7500 2800W AC Power Supply (JD219A)
 HPE FlexNetwork 7500 6000W AC Power Supply (JD227A)
Note: At the time of the GA, November 1, only US and Canada support this 6K PSU. For more information, please consult your HPE's representative

Fan tray

HPE 7503X Fan Tray Assembly (R8N61A)
 HPE 7506X Fan Tray Assembly (R8N60A)
 HPE 7510 Spare Fan Assembly (JD216A)

Make the right purchase decision.
 Contact our presales specialists.



 Get updates


Hewlett Packard
 Enterprise

LEARN MORE AT
hpe.com/networking

© Copyright 2021 Hewlett Packard Enterprise Development LP. The information contained herein is subject to change without notice. The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Hewlett Packard Enterprise shall not be liable for technical or editorial errors or omissions contained herein.

Google is a registered trademark of Google LLC. sFlow is a registered trademark of InMon Corp. All third-party marks are property of their respective owners.

a50005131ENW, Rev. 1