Hewlett Packard Enterprise

HPE FLEXNETWORK 5140 HI SWITCH SERIES

HPE FlexNetwork 5140 48G PoE+ 4SFP+ HI Switch (R9L64A)

KEY FEATURES

- Gigabit Ethernet access switch with enhanced L3 routing features such as OSPF V2 / OSPF V3 / VRRP / VRRPE / Routed Ports, RIP, 10GbE uplinks, and PoE+ models for voice, video, wireless and IoT

- Higher port switching capacity, forwarding performance and port line rate granularity, 2x dynamic ARP and IPv6 unicast routing than previous version and introduction of IGMP proxy for improved network performance

- DRNI combines multiple physical switches into one virtual distributed-relay (DR) system for doubling aggregate bandwidth, faster forwarding, resiliency, and high availability

- Intelligent Network Quality Analyzer (iNQA) measures network packet loss performance and provides visibility into real-time application performance and health

- Industry standard MACsec support, increased MAC port binding and link group capacity for improved encryption and end-to-end network security

- Smart Management Center (SmartMC) provides centralized network management and maintains dispersed network edge devices at no additional cost

- Includes introduction of a 2 port MACsec AES 256 module supported on all "HI" series models (R9L65A)

PRODUCT OVERVIEW

The HPE FlexNetwork 5140 HI Switch series delivers high availability and scalability at the access layer of medium and large enterprise campus networks.

These switches offer high speed connectivity and flexibility with 10GbE uplinks, and combo ports. Support for add-on modules increases capacity or provides additional features. It is a highly cost-effective switch with abundant features such as DRNI and IRF for improved resiliency, QoS features for better reliability, iNQA for real time network health performance and capacity visibility, hardware based MACsec for end-to-end encrypted security and dual redundant power supplies with Energy Efficient Ethernet for improved power saving.

This Switch Series also includes Smart MC at no additional cost and combined with Intelligent Management Center (IMC), provides embedded network management, enhanced network visibility and automation.

FEATURES AND BENEFITS

Highly Resilient and Scalable Access Layer Switches

- The HPE FlexNetwork 5140 HI Switch series uses Intelligent Resilient Framework (IRF) to support virtualization of up to nine physical switches into one logical device for simpler, flatter, more agile and resilient networks.

- Supports 10GbE uplinks, static and RIP routing, PoE+, ACLs, IPv6 for improved and cost-effective network performance

- DRNI, enables link aggregation from multiple switches to implement device-level link backup for node redundancy. DRNI also provides access to the aggregate bandwidth and simplifies network topology by virtualizing two physical devices into a logical device.

- iNQA helps in measuring network packet loss performance, forward, reverse, and two-way packet loss, including lost number of messages and bytes, message loss and byte loss rate.

- Dual, redundant, hot-swappable power supplies maintain a dynamic and highly available network switch delivering up to 1440 Watts of PoE+ for powered cameras, phones, and wireless Access Points.

Robust Quality of Service (QoS)

- The HPE FlexNetwork 5140 HI Switch series supports advanced classifier based QoS which groups traffic using multiple match criteria based on Layer 2 and 3 information; it applies QoS policies such as setting priority level and rate limit to selected traffic on a port, VLAN, or the entire switch.

- Provides extensive traffic prioritization with strict priority (SP) queuing, weighted round robin (WRR) and SP+WRR

- Broadcast control and limitation of broadcast traffic rate can reduce unwanted network traffic and preserve more bandwidth for critical data.

Comprehensive Security Control

- HPE FlexNetwork 5140 HI Switch series supports flexible authentication methods including 802.1X, MAC Authentication and Encryption for greater device security and policy-driven application authentication. Per-user Access Control Lists (ACLs) provide identity-driven security and access control.

- Dynamic ARP protection with functions such as ARP Detection and ARP packet validation blocks broadcast from unauthorized hosts, prevents eavesdropping or theft of network data.

- Supports industry standard AES256 MACsec which provides increased MAC port binding and link group capacity for greater end-to-end security.

- Centralized security policy management and network protection with HPE Intelligent Management Center (IMC), which leverages End User Admission Domination (EAD) integrated security policies, network access control and access right control policies to provide a comprehensive integrated security system.

- Security with encryption of all access methods (CLI, GUI, or MIB) through SSHv2, SSL, and/or SNMPv3, and other features including DHCP protection, IP source guard, dynamic ARP protection and RADIUS/HWTACAS.

Simplified Management
- The HPE FlexNetwork 5130 HI Switch series seamlessly managed and automated with HPE Intelligent Management Center (IMC) Software to provide end-to-end network transparency with consistent network experience through comprehensive configuration, compliance, and policy management.

- Supports SmartMC, an embedded network management tool, with a web-based GUI to simplify operations and facilitate centralized management at no additional cost. It offers features such as configuration backup, software version management, and seamless switch replacement.

- RMON and sFlow® provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events to help network operators with capacity planning and real-time network monitoring.

Warranty and support
- Limited Lifetime Warranty

  See hpe.com/networking/warrantysummary for warranty and support information included with your product purchase.

- Software releases

  To find software for your product, refer to hpe.com/networking/support; for details on the software releases available with your product purchase, refer to hpe.com/networking/warrantysummary

HPE FLEXNETWORK 5140 HI SWITCH SERIES

Specifications	HPE FlexNetwork 5140 24G 4SFP+ HI Switch (R9L61A)	HPE FlexNetwork 5140 48G 4SFP+ HI Switch (R9L62A)	HPE FlexNetwork 5140 24G PoE+ 4SFP+ HI Switch (R9L63A)	HPE FlexNetwork 5140 48G PoE+ 4SFP+ HI Switch (R9L64A)
I/O ports and slots	24 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T) with 8 combo ports (RJ45 or SFP) 4 1/10G SFP+ ports, 1 port expansion module slot. Attention: SFP PLUS can also support 1G SFP and 1G SFP-GE-T (only works at GE)	48 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T), 4 1/10G SFP+ ports, 1 port expansion module slot. Attention: SFP PLUS can also support 1G SFP and 1G SFP-GE-T (only works at GE)	24 RJ-45 autosensing 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+), 4 SFP+ 10GbE ports 1 port expansion module slot	48 RJ-45 autosensing 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+) 4 SFP+ 10GbE ports 1 port expansion module slot
Additional ports and slots	1 dual-personality (RJ-45 or mini-USB) serial console port 1 RJ-45 out-of-band management port 1 USB 2.0	1 dual-personality (RJ-45 or mini-USB) serial console port 1 RJ-45 out-of-band management port 1 USB 2.0	1 dual-personality (RJ-45 or mini-USB) serial console port 1 RJ-45 out-of-band management port 1 USB 2.0	1 dual-personality (RJ-45 or mini-USB) serial console port 1 RJ-45 out-of-band management port 1 USB 2.0
Power supplies	2 power supply slots 1 minimum power supply required	2 power supply slots 1 minimum power supply required	2 power supply slots 1 minimum power supply required	2 power supply slots 1 minimum power supply required
Fan tray	Airflow direction is from side to back	Airflow direction is from side to back	Airflow direction is from side to back	Airflow direction is from side to back
Physical characteristics				
Dimensions	17.32(w) x 14.17(d) x 1.71(h) in. (44.00 x 36.00 x 4.36 cm) (1U height)	17.32(w) x 14.17(d) x 1.71(h) in. (44.00 x 36.00 x 4.36 cm) (1U height)	17.32(w) x 18.11(d) x 1.71(h) in. (44.00 x 46.00 x 4.36 cm) (1U height)	17.32(w) x 18.11(d) x 1.71(h) in. (44.00 x 46.00 x 4.36 cm) (1U height)
Weight	≤6.7 kg	≤7.0 kg	≤9.2 kg	≤9.6 kg
Memory and processor	2 GB SDRAM; Packet buffer size: 4 MB, 512 MB flash	2 GB SDRAM; Packet buffer size: 4 MB, 512 MB flash	2 GB SDRAM; Packet buffer size: 4 MB, 512 MB flash	2 GB SDRAM; Packet buffer size: 4 MB, 512 MB flash
Mounting and enclosure	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included)	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included)	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included)	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included)
Performance				
1000 Mb Latency	< 5 µs	< 5 µs	< 5 µs	< 5 µs
10 Gbps Latency	< 3 µs	< 3 µs	< 3 µs	< 3 µs
Throughput	180 Mpps	180 Mpps	180 Mpps	180 Mpps
Routing/Switching capacity	288 Gbps	336 Gbps	288 Gbps	336 Gbps
Static MAC table	1K	1K	1K	1K
MAC address table size	32K	32K	32K	32K

HPE FLEXNETWORK 5140 HI SWITCH SERIES (CONTINUED)

Specifications	HPE FlexNetwork 5140 24G 4SFP+ HI Switch (R9L61A)	HPE FlexNetwork 5140 48G 4SFP+ HI Switch (R9L62A)	HPE FlexNetwork 5140 24G PoE+ 4SFP+ HI Switch (R9L63A)	HPE FlexNetwork 5140 48G PoE+ 4SFP+ HI Switch (R9L64A)
Environment				
Operating temperature	23°F to 113°F (-5°C to 45°C)	23°F to 113°F (-5°C to 45°C)	23°F to 113°F (-5°C to 45°C)	23°F to 113°F (-5°C to 45°C)
Operating relative humidity	5% to 95%, noncondensing	5% to 95%, noncondensing	5% to 95%, noncondensing	5% to 95%, noncondensing
Non-operating/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)	-40°F to 158°F (-40°C to 70°C)
Non-operating/Storage relative humidity	5% to 95%, noncondensing	5% to 95%, noncondensing	5% to 95%, noncondensing	5% to 95%, noncondensing
Acoustic	low speed fan: 53.0 dB, High speed fan: 68.9 dB. ISO 7779	low speed fan: 49.2 dB, High speed fan: 68.9 dB. ISO 7779	low speed fan: 57.2 dB, High speed fan: 68.9 dB. ISO 7779	low speed fan: 57.2 dB, High speed fan: 68.9 dB. ISO 7779
Electrical characteristics				
Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Maximum heat dissipation	ranges from 81.89 BTU/hr to 324 BTU/hr depending on power supply configuration	ranges from 81.89 BTU/hr to 324 BTU/hr depending on power supply configuration	ranges from 105.7 BTU/hr to 3166 BTU/hr depending on power supply configuration	ranges from 112 BTU/hr to 5943 BTU/hr depending on power supply configuration
Current	6A	6A	20A	20A
voltage	100–240 VAC, rated (90–264 VAC, max)-48 to -60 VDC, rated (-36 to -72 VDC, max) (depending on power supply chosen)	100–240 VAC, rated (90–264 VAC, max)-48 to -60 VDC, rated (-36 to -72 VDC, max) (depending on power supply chosen)	100–240 VAC, rated (90–264 VAC, max)-48 to -60 VDC, rated (-36 to -72 VDC, max) (depending on power supply chosen)	100–240 VAC, rated (90–264 VAC, max)-48 to -60 VDC, rated (-36 to -72 VDC, max) (depending on power supply chosen)
Maximum power rating	95 W (dual DC)	96 W (dual DC)	928 W (dual AC)	1742 W (dual AC)
Idle power	29 W (dual AC)	31 W (dual AC)	31 W (dual AC)	40 W (dual AC)
PoE power	NA	NA	720W (30W max PoE power per port)	1440W (30W max PoE power per port)
Notes	• Idle power is the actual power consumption of the device with no ports connected. • Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated	• Idle power is the actual power consumption of the device with no ports connected. • Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated	• Idle power is the actual power consumption of the device with no ports connected. • Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated • PoE+ power range is from 360W to 740W. PoE+ power is the power supplied by the internal power supplies. It is dependent on the type and quantity of power supplies. Device supports 1 or 2 internal modular power supplies.	• Idle power is the actual power consumption of the device with no ports connected. • Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated • PoE+ power range is from 360W to 1440W. PoE+ power is the power supplied by the internal power supplies. It is dependent on the type and quantity of power supplies. Device supports 1 or 2 internal modular power supplies.
Safety	UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; FDA 21 CFR Subchapter J; RoHS Compliance; AS/NZS 60950-1; GB 4943; EAC (EurAsian Conformity Certification)	UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; FDA 21 CFR Subchapter J; RoHS Compliance; AS/NZS 60950-1; GB 4943; EAC (EurAsian Conformity Certification)	UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; FDA 21 CFR Subchapter J; RoHS Compliance; AS/NZS 60950-1; GB 4943; EAC (EurAsian Conformity Certification)	UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; FDA 21 CFR Subchapter J; RoHS Compliance; AS/NZS 60950-1; GB 4943; EAC (EurAsian Conformity Certification)

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Emissions	ETSI EN300 386 V1.6.1 (2012-09); ETSI EN 300 386 V2.1.1 (2016-07); EN 55032:2015 CLASS A; CISPR 32:2015 CLASS A; AS/NZS CISPR 32:2015 CLASS A; EN 61000-3-2:2014; EN 61000-3-3:2013; FCC PART15 Subpart B CLASS A; ICES-003 Issue 7 CLASS A; ANSI C63.4-2014; VCCI-CISPR 32:2016 CLASS A	ETSI EN300 386 V1.6.1 (2012-09); ETSI EN 300 386 V2.1.1 (2016-07); EN 55032:2015 CLASS A; CISPR 32:2015 CLASS A; AS/NZS CISPR 32:2015 CLASS A; EN 61000-3-2:2014; EN 61000-3-3:2013; FCC PART15 Subpart B CLASS A; ICES-003 Issue 7 CLASS A; ANSI C63.4-2014; VCCI-CISPR 32:2016 CLASS A	ETSI EN300 386 V1.6.1 (2012-09); ETSI EN 300 386 V2.1.1 (2016-07); EN 55032:2015 CLASS A; CISPR 32:2015 CLASS A; AS/NZS CISPR 32:2015 CLASS A; EN 61000-3-2:2014; EN 61000-3-3:2013; FCC PART15 Subpart B CLASS A; ICES-003 Issue 7 CLASS A; ANSI C63.4-2014; VCCI-CISPR 32:2016 CLASS A	ETSI EN300 386 V1.6.1 (2012-09); ETSI EN 300 386 V2.1.1 (2016-07); EN 55032:2015 CLASS A; CISPR 32:2015 CLASS A; AS/NZS CISPR 32:2015 CLASS A; EN 61000-3-2:2014; EN 61000-3-3:2013; FCC PART15 Subpart B CLASS A; ICES-003 Issue 7 CLASS A; ANSI C63.4-2014; VCCI-CISPR 32:2016 CLASS A
Generic	IEC 61000-4-1:2006; IEC 61000-4-2:Ed2 2008; IEC 61000-4-3:2020; IEC 61000-4-3:2010; IEC 61000-4-4:2004; IEC 61000-4-4:2011; IEC 61000-4-4:Ed3.0 2012; IEC 61000-4-5:2014; IEC 61000-4-5:2017; IEC 61000-4-6:2013; IEC 61000-4-6:2013 COR1:2015; IEC 61000-4-8:2009; IEC 61000-4-11:2004; IEC 61000-4-11:2017; IEC 61000-4-11:2020	IEC 61000-4-1:2006; IEC 61000-4-2:Ed2 2008; IEC 61000-4-3:2020; IEC 61000-4-3:2010; IEC 61000-4-4:2004; IEC 61000-4-4:2011; IEC 61000-4-4:Ed3.0 2012; IEC 61000-4-5:2014; IEC 61000-4-5:2017; IEC 61000-4-6:2013; IEC 61000-4-6:2013 COR1:2015; IEC 61000-4-8:2009; IEC 61000-4-11:2004; IEC 61000-4-11:2017; IEC 61000-4-11:2020	IEC 61000-4-1:2006; IEC 61000-4-2:Ed2 2008; IEC 61000-4-3:2020; IEC 61000-4-3:2010; IEC 61000-4-4:2004; IEC 61000-4-4:2011; IEC 61000-4-4:Ed3.0 2012; IEC 61000-4-5:2014; IEC 61000-4-5:2017; IEC 61000-4-6:2013; IEC 61000-4-6:2013 COR1:2015; IEC 61000-4-8:2009; IEC 61000-4-11:2004; IEC 61000-4-11:2017; IEC 61000-4-11:2020	IEC 61000-4-1:2006; IEC 61000-4-2:Ed2 2008; IEC 61000-4-3:2020; IEC 61000-4-3:2010; IEC 61000-4-4:2004; IEC 61000-4-4:2011; IEC 61000-4-4:Ed3.0 2012; IEC 61000-4-5:2014; IEC 61000-4-5:2017; IEC 61000-4-6:2013; IEC 61000-4-6:2013 COR1:2015; IEC 61000-4-8:2009; IEC 61000-4-11:2004; IEC 61000-4-11:2017; IEC 61000-4-11:2020
ESD	Air 8KV; Con 6KV; Criteria B	Air 8KV; Con 6KV; Criteria B	Air 8KV; Con 6KV; Criteria B	Air 8KV; Con 6KV; Criteria B
Immunity	ETSI EN300 386 V1.6.1 (2012-09); ETSI EN 300 386 V2.1.1 (2016-07); EN 55035:2017; CISPR 35:2016;	ETSI EN300 386 V1.6.1 (2012-09); ETSI EN 300 386 V2.1.1 (2016-07); EN 55035:2017; CISPR 35:2016;	ETSI EN300 386 V1.6.1 (2012-09); ETSI EN 300 386 V2.1.1 (2016-07); EN 55035:2017; CISPR 35:2016;	ETSI EN300 386 V1.6.1 (2012-09); ETSI EN 300 386 V2.1.1 (2016-07); EN 55035:2017; CISPR 35:2016;
Management	IMC—Intelligent Management Center; Smart MC, command-line interface; SNMP Manager	IMC—Intelligent Management Center; Smart MC, command-line interface; SNMP Manager	IMC—Intelligent Management Center; Smart MC, command-line interface; SNMP Manager	IMC—Intelligent Management Center; Smart MC, command-line interface; SNMP Manager
Services	Refer to 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, please contact your local Hewlett Packard Enterprise sales office.	Refer to 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, please contact your local Hewlett Packard Enterprise sales office.	Refer to 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, please contact your local Hewlett Packard Enterprise sales office.	Refer to 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, please contact your local Hewlett Packard Enterprise sales office.

Standards and Protocols

(Applies to all products in series)

General protocols			
	IEEE 802.1ad Q-in-Q	RFC 1122 Requirements for Internet Hosts—Communication Layers	RFC 3246 Expedited Forwarding PHB
	IEEE 802.1ak Multiple Registration Protocol (MRP) and Multiple VLAN Registration Protocol (MVRP)	RFC 1123 Requirements for Internet Hosts	RFC 3410 Applicability Statements for SNMP
	IEEE 802.1AE MACsec	RFC 1141 Incremental updating of the Internet checksum	RFC 3414 User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3)
	IEEE 802.1AX—2008 Link Aggregation	RFC 1191 Path MTU discovery	RFC 3415 View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)
	IEEE 802.1D MAC Bridges	RFC 1213 Management Information Base for Network Management of TCP/IP-based internets	RFC 3416 Protocol Operations for SNMP
	IEEE 802.1p Priority	RFC 1256 ICMP Router Discovery Protocol (IRDP)	RFC 3417 Transport Mappings for the Simple Network Management Protocol (SNMP)
	IEEE 802.1Q (GVRP)	RFC 1305 NTPv3	
	IEEE 802.1Q VLANs	RFC 1350 TFTP Protocol (revision 2)	RFC 3418 Management Information Base (MIB) for the Simple Network Management
	IEEE 802.1s Multiple Spanning Trees	RFC 1519 CIDR	RFC 3484 Default Address Selection for Internet Protocol version 6 (IPv6)
	IEEE 802.1v VLAN classification by Protocol and Port	RFC 1533 DHCP Options and BOOTP Vendor Extensions	RFC 3493 Basic Socket Interface Extensions for IPv6
	IEEE 802.1w Rapid Reconfiguration of Spanning Tree	RFC 1542 BOOTP Extensions	RFC 3542 Advanced Sockets Application Program Interface (API) for IPv6
	IEEE 802.1X PAE	RFC 1591 DNS (client only)	RFC 3576 Ext to RADIUS (CoA only)
	IEEE 802.3 Type 10BASE-T	RFC 1643 Definitions of Managed Objects for the Ethernet-like Interface Types	RFC 3580 IEEE 802.1X Remote
	IEEE 802.3ab 1000BASE-T	RFC 1723 RIP v2	Authentication Dial In User Service (RADIUS) Usage Guidelines
	IEEE 802.3ac (VLAN Tagging Extension)	RFC 1812 IPv4 Routing	RFC 3587 IPv6 Global Unicast Address Format
	IEEE 802.3ad Link Aggregation (LAG)	RFC 1866 Hypertext Markup Language—2.0	RFC 3596 DNS Extensions to Support IP Version 6
	IEEE 802.3ad Link Aggregation Control Protocol (LACP)	RFC 1887 An Architecture for IPv6 Unicast Address Allocation	RFC 3704 Unicast Reverse Path Forwarding (URPF)
	IEEE 802.3ae 10-Gigabit Ethernet	RFC 1901 Introduction to Community-based SNMPv2	RFC 4113 Management Information Base for the User Datagram Protocol (UDP)
	IEEE 802.3af Power over Ethernet	RFC 1902-1907 SNMPv2	RFC 4213 Basic IPv6 Transition Mechanisms
	IEEE 802.3at Power over Ethernet Plus	RFC 2131 DHCP	RFC 4250 The Secure Shell (SSH) Protocol Assigned Numbers
	IEEE 802.3az Energy Efficient Ethernet	RFC 2236 IGMP Snooping	RFC 4251 The Secure Shell (SSH) Protocol Architecture
	IEEE 802.3i 10BASE-T	RFC 2375 IPv6 Multicast Address Assignments	
	IEEE 802.3u 100BASE-X	RFC 2462 IPv6 Stateless Address Autoconfiguration	RFC 4252 The Secure Shell (SSH) Authentication Protocol
	IEEE 802.3x Flow Control	RFC 2474 Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers	RFC 4253 The Secure Shell (SSH) Transport Layer Protocol
	IEEE 802.3z 1000BASE-X RFC 768 UDP	RFC 2475 Architecture for Differentiated Services	RFC 4254 The Secure Shell (SSH) Connection Protocol
	RFC 783 TFTP Protocol (revision 2)	RFC 2597 Assured Forwarding PHB Group	
	RFC 791 IP	RFC 2616 Hypertext Transfer Protocol—HTTP/1.1	RFC 4291 IP Version 6 Addressing Architecture
	RFC 792 ICMP	RFC 2644 Directed Broadcast Control	RFC 4443 Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification
	RFC 793 TCP	RFC 2665 Definitions of Managed Objects for the Ethernet-like Interface Types	RFC 4541 Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches
	RFC 826 ARP	RFC 2668 Definitions of Managed Objects for IEEE 802.3 Medium Attachment Units (MAUs)	
	RFC 854 TELNET	RFC 2711 IPv6 Router Alert Option	RFC 4594 Configuration Guidelines for DiffServ Service Classes
	RFC 855 Telnet Option Specification	RFC 2865 Remote Authentication Dial In User Service (RADIUS)	RFC 4675 RADIUS VLAN & Priority
	RFC 894 IP over Ethernet	RFC 2866 RADIUS Accounting	RFC 5095 Deprecation of Type 0 Routing Headers in IPv6
	RFC 925 Multi-LAN Address Resolution	RFC 2868 RADIUS Attributes for Tunnel Protocol Support	
	RFC 950 Internet Standard Subnetting Procedure	RFC 3046 DHCP Relay Agent Information Option	
	RFC 951 BOOTP		
	RFC 959 File Transfer Protocol (FTP)		
	RFC 1027 Proxy ARP		
	RFC 1042 IP Datagrams		
	RFC 1058 RIPv1		
	RFC 1071 Computing the Internet Checksum		
	RFC 1166 IP Addresses		

Standards and Protocols (continued)

(Applies to all products in series)

IPv6	RFC 1981 IPv6 Path MTU Discovery RFC 2460 IPv6 Specification RFC 2461 IPv6 Neighbor Discovery RFC 2463 ICMPv6 RFC 2464 Transmission of IPv6 over Ethernet Networks	RFC 3162 RADIUS and IPv6 RFC 3306 Unicast-Prefix-based IPv6 Multicast Addresses RFC 3307 IPv6 Multicast Address Allocation RFC 3315 DHCPv6 (client and relay) RFC 3484 Default Address Selection for IPv6 RFC 3736 Stateless Dynamic Host Configuration Protocol (DHCP) Service for IPv6	RFC 4291 IP Version 6 Addressing Architecture RFC 4293 MIB for IP RFC 4443 ICMPv6 RFC 4861 IPv6 Neighbor Discovery RFC 4862 IPv6 Stateless Address Auto-configuration RFC 6724 Default Address Selection for Internet Protocol Version 6 (IPv6)
MIBs	RFC 1212 Concise MIB Definitions RFC 1213 MIB II RFC 1215 A Convention for Defining Traps for use with the SNMP RFC 1493 Bridge MIB RFC 1757 Remote Network Monitoring MIB RFC 2096 IP Forwarding Table MIB RFC 2233 Interface MIB RFC 2571 SNMP Framework MIB RFC 2572 SNMP-MPD MIB RFC 2573 SNMP-Notification MIB	RFC 2573 SNMP-Target MIB RFC 2574 SNMP USM MIB RFC 2618 RADIUS Authentication Client MIB RFC 2620 RADIUS Accounting Client MIB RFC 2665 Ethernet-Like-MIB RFC 2668 802.3 MAU MIB RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and Virtual Extensions	RFC 2737 Entity MIB (Version 2) RFC 2819 RMON MIB RFC 2863 The Interfaces Group MIB RFC 2925 Ping MIB RFC 3414 SNMP-User based-SM MIB RFC 3415 SNMP-View based-ACM MIB RFC 3418 MIB for SNMPv3 RFC 3621 Power Ethernet MIB
Network management	IEEE 802.1AB Link Layer Discovery Protocol (LLDP) RFC 1215 Convention for Defining Traps for use with the SNMP RFC 2579 Textual Conventions for SMIv2 RFC 2580 Conformance Statements for SMIv2	RFC 2818 HTTP over TLS RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events) RFC 6398 IP Router Alert Considerations and Usage	ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED) SNMPv1/v2c/v3
QoS/CoS	RFC 2474 DS Field in the IPv4 and IPv6 Headers	RFC 3260 New Terminology and Clarifications for DiffServ	
Security	IEEE 802.1X Port Based Network Access Control RFC 1492 TACACS+ RFC 2138 RADIUS Authentication	RFC 2139 RADIUS Accounting RFC 2865 RADIUS Authentication RFC 2866 RADIUS Accounting RFC 3260 New Terminology and Clarifications for DiffServ RFC 4716 SSH Public Key File Format	Secure Sockets Layer (SSL) SSHv2 Secure Shell

Accessories

(Applies to all products in series)

Modules	HPE FlexNetwork 5140/5520 10GBASE-T MACsec 2p Mod R9L65A
	HPE 5130/5510 10GBASE-T 2p Module JH156A
	HPE 5130/5510 10GbE SFP+ 2p Module JH157A
FE SFP Transceivers	HPE X115 100M SFP LC FX Transceiver JD102B
	HPE X110 100M SFP LC LX Transceiver JD120B
	HPE X110 100M SFP LC BX 10-U Transceiver JD100A
	HPE X110 100M SFP LC BX 10-D Transceiver JD101A
SFP Transceivers	HPE X120 1G SFP RJ45 T Transceiver JD089B
	HPE X120 1G SFP LC SX Transceiver JD118B
	HPE X120 1G SFP LC LX Transceiver JD119B
	HPE X120 1G SFP LC BX 10-U Transceiver JD098B
	HPE X120 1G SFP LC BX 10-D Transceiver JD099B
	HPE X120 1G SFP LC LH100 Transceiver JD103A
SFP+ Transceivers	HPE X130 10G SFP+ LC BiDi 40km Downlink Transceiver JL740A
	HPE X130 10G SFP+ LC ER 40km Transceiver JG234A
	HPE X130 10G SFP+ LC BiDi 40km-Uplink Transceiver JL739A
	HPE X130 10G SFP+ LC LH 80km Transceiver JG915A
	HPE X130 10G SFP+ LC SR Transceiver JD092B
	HPE X130 10G SFP+ LC LR Transceiver JD094B
	HPE X130 10G SFP+ LC BiDi 10km-Uplink Transceiver JL737A
	HPE X130 10G SFP+ LC BiDi 10km-Downlink Transceiver JL738A
	HPE X240 10G SFP+ SFP+ 3m DAC Cable JD097C
	HPE X240 10G SFP+ SFP+ 5m DAC Cable JG081C
	HPE X240 10G SFP+ SFP+ 0.65m DAC Cable JD095C
	HPE X240 10G SFP+ SFP+ 1.2m DAC Cable JD096C
	HPE X2A0 10G SFP+ 7m AOC Cable JL290A
	HPE X2A0 10G SFP+ 10m AOC Cable JL291A
	HPE X2A0 10G SFP+ 20m AOC Cable JL292A
Power Supplies	HPE X361 150W AC Power Supply JD362B
	HPE X361 150W DC Power Supply JD366B
	HPE X362 720W AC PoE Power Supply JG544A
	HPE X362 1110W AC PoE Power Supply JG545A
Fan trays	HPE X721 Power to Port Fan Tray JH158A
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