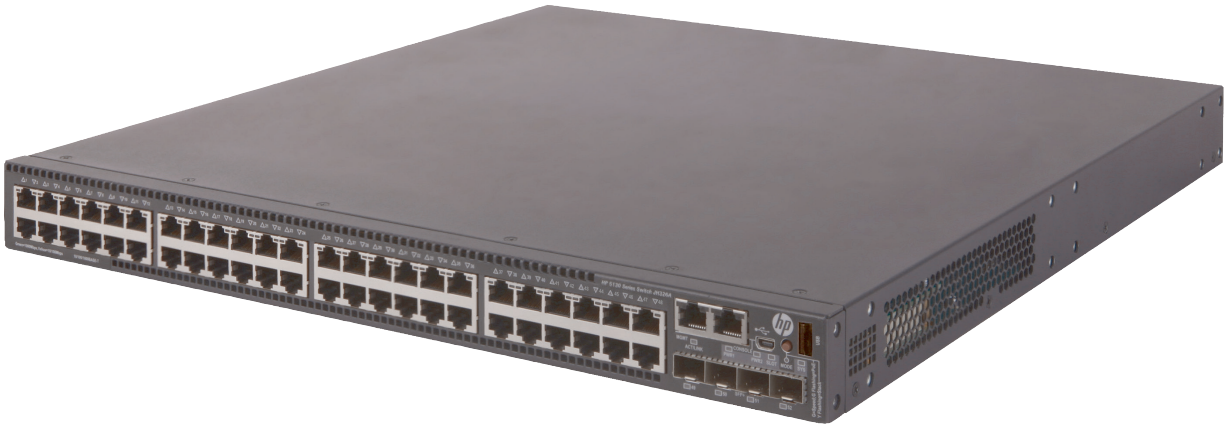
Hewlett Packard Enterprise

Data sheet

HPE FlexNetwork 5130 HI Switch Series



Key features

- Scalable with 10 Gigabit uplinks and nine-chassis IRF with up to 80 Gbps stacking bandwidth
- PoE+ for up to 30 W of PoE power per port on all ports simultaneously
- Four convenient built-in SFP+ 10GbE uplinks provide performance for bandwidth hungry applications
- OpenFlow 1.3 support
- MACsec support

Product overview

The HPE FlexNetwork 5130 HI Switch Series comprises Gigabit Ethernet switches that support static and RIP Layer 3 routing, diversified services, and IPv6 forwarding, as well as provide four 10 Gigabit Ethernet (10GbE) interfaces.

Unique Intelligent Resilient Fabric (IRF) technology creates a virtual fabric by managing several switches as one logical device, which increases network resilience, performance, and availability, while reducing operational complexity. These switches provide Gigabit Ethernet access and can be used at the edge of a network or to connect server clusters in small data centers.

High availability, simplified management, and comprehensive security control policies are among the key features that distinguish this series. This switch also supports dual modular power supplies.

Features and benefits

Software-defined networking

- OpenFlow

  Supports OpenFlow 1.3 specification to enable SDN by allowing separation of the data (packet forwarding) and control (routing decision) paths

Quality of Service (QoS)

- Broadcast control

  Allows limitation of broadcast traffic rate to cut down on unwanted network broadcast traffic

- Advanced classifier-based QoS

  Classifies traffic using multiple match criteria based on Layers 2, 3, and 4 information; applies QoS policies such as setting priority level and rate limit to selected traffic on a port, VLAN, or entire switch

- Powerful QoS feature

  Supports the following congestion actions: strict priority (SP) queuing, weighted round robin (WRR), and SP+WRR

- Traffic policing

  Supports Committed Access Rate (CAR) and line rate

Management

- Remote configuration and management

  Enables configuration and management through a secure CLI located on a remote device

- Manager and operator privilege levels

  Provides read-only (operator) and read/write (manager) access on CLI management interface

- Command authorization

  Leverages RADIUS/HWTACACS to link a custom list of CLI commands to an individual network administrator's login; also provides an audit trail

- Multiple configuration files

  Stores easily to the flash image

- Complete session logging

  Provides detailed information for problem identification and resolution

- Remote monitoring (RMON)

  Uses standard SNMP to monitor essential network functions; supports events, alarm, history, and statistics group plus a private alarm extension group

- IEEE 802.1AB Link Layer Discovery Protocol (LLDP)

  Advertises and receives management information from adjacent devices on a network, facilitating easy mapping by network management applications

- sFlow® (RFC 3176)

  Provides scalable ASIC-based wirespeed network monitoring and accounting with no impact on network performance; this allows network operators to gather a variety of sophisticated network statistics and information for capacity planning and real-time network monitoring purposes

- Management VLAN

  Segments traffic to and from management interfaces, including CLI/Telnet, and SNMP

- Remote intelligent mirroring

  Mirrors ingress/egress ACL-selected traffic from a switch port or VLAN to a local or remote switch port anywhere on the network

- Device Link Detection Protocol (DLDP)

  Monitors a cable between two compatible switches and shuts down the ports on both ends if the cable is broken, which prevents network problems such as loops

- IPv6 management

  Provides future-proof networking because the switch is capable of being managed whether the attached network is running IPv4 or IPv6; supports pingv6, tracertv6, Telnetv6, TFTPv6, DNSv6, syslogv6, FTPv6, SNMPv6, DHCPv6, and RADIUS for IPv6

- Troubleshooting

  Ingress and egress port monitoring enables network problem-solving; virtual cable tests provide visibility into cable problems

- HPE Intelligent Management Center (IMC)

  Integrates fault management, element configuration, and network monitoring from a central vantage point; built-in support for third-party devices enables network administrators to centrally manage all network elements with a variety of automated tasks, including discovery, categorization, baseline configurations, and software images; the software also provides configuration comparison tools, version tracking, change alerts, and more

- Network Management

  SNMP v1/v2c/v3, MIB-II with Traps, and RADIUS Authentication Client MIB (RFC 2618); embedded HTML management tool with secure access

Connectivity

- Auto-MDIX

  Automatically adjusts for straight-through or crossover cables on all 10/100/1000 ports

- Flow Control

  Provides back pressure using standard IEEE 802.3x, reducing congestion in heavy traffic situations

- High-density connectivity

  Provides up to 48 fixed 10/100/1000BASE-T ports in a Layer 2/Lite Layer 3 switch

- IEEE 802.3at Power over Ethernet (PoE+) support

  Simplifies deployment and dramatically reduces installation costs by helping to eliminate the time and cost involved in supplying local power at each access point location

- Ethernet operations, administration, and maintenance (OAM)

  Detects data link layer problems that occurred in the "last mile" using the IEEE 802.3ah OAM standard; monitors the status of the link between two devices

Performance

- Non-blocking architecture

  Up to 216 Gbps non-blocking switching fabric provides wirespeed switching with up to 190.5 million pps throughput

- Hardware-based wirespeed access control lists (ACLs)

  Help provide high levels of security and ease of administration without impacting network performance with a feature-rich TCAM-based ACL implementation

Resiliency and high availability

- Separate data and control paths

  Separates control from services and keeps service processing isolated; increases security and performance

- Smart Link

  Allows under 100 ms failover between links

- Spanning Tree/PVST+, MSTP, RSTP

  Provides redundant links while preventing network loops

- Intelligent Resilient Fabric (IRF)

  Creates virtual resilient switching fabrics, where two to nine switches perform as a single L2 switch and L3 router; switches do not have to be colocated and can be part of a disaster-recovery system; servers or switches can be attached using standard LACP for automatic load balancing and high availability; can eliminate need for complex protocols like Spanning Tree Protocol, Equal-Cost Multipath (ECMP), or VRRP, thereby simplifying network operation

- Internal Dual Redundant Power Supply

  Provides high reliability by keeping network up while delivering up to 1440 W of PoE+

Manageability

- Dual-flash images

  Provides independent primary and secondary operating system files for backup while upgrading

- Multiple configuration files

  Allow multiple configuration files to be stored to a flash image

- IPv6 management

  Future-proofs networking, as the switch is capable of being managed whether the attached network is running IPv4 or IPv6; supports pingv6, tracertv6, Telnetv6, TFTPv6, DNSv6, and ARPv6

- Troubleshooting

  Allows ingress and egress port monitoring, enabling network problem solving; virtual cable tests provide visibility into cable problems

Layer 2 switching

- 32K MAC address table

  Provides access to many Layer 2 devices

- VLAN support and tagging

  Supports IEEE 802.1Q with 4094 simultaneous VLAN IDs

- IEEE 802.1ad QinQ and selective QinQ

  Increase the scalability of an Ethernet network by providing a hierarchical structure; connect multiple LANs on a high-speed campus or metro network

- 10GbE port aggregation

  Allows grouping of ports to increase overall data throughput to a remote device

- Device Link Detection Protocol (DLDP)

  Monitors link connectivity and shuts down ports at both ends if unidirectional traffic is detected, preventing loops in STP-based networks

- Jumbo frame support

  Improves the performance of large data transfers; supports frame size of up to 9K bytes

Layer 3 services

- Address Resolution Protocol (ARP)

  Determines the MAC address of another IP host in the same subnet; supports static ARPs; gratuitous ARP allows detection of duplicate IP addresses; proxy ARP allows normal ARP operation between subnets or when subnets are separated by a Layer 2 network

- Dynamic Host Configuration Protocol (DHCP)

  Simplifies the management of large IP networks; supports client; DHCP Relay enables DHCP operation across subnets

- Loopback interface address

  Defines an address that can always be reachable, improving diagnostic capability

- User Datagram Protocol (UDP) helper function

  Allows UDP broadcasts to be directed across router interfaces to specific IP unicast or subnet broadcast addresses and prevents server spoofing for UDP services such as DHCP

- Route maps

  Provide more control during route redistribution; allow filtering and altering of route metrics

- DHCP server

  Centralizes and reduces the cost of IPv4 address management

Layer 3 routing

- Static IP routing

  Provides manually configured routing for both IPv4 and IPv6 networks

- Routing Information Protocol (RIP)

  Uses a distance vector algorithm with UDP packets for route determination; supports RIPv1 and RIPv2 routing; includes loop protection

- Policy Based Routing

  Provides a mechanism for indicating and executing forwarding/routing of data packets based on the policies defined by the network administrator

Security

- Access control lists (ACLs)

  Provides IP Layer 2 to Layer 4 traffic filtering; supports global ACL, VLAN ACL, port ACL, and IPv6 ACL

- IEEE 802.1X

  Industry-standard method of user authentication using an IEEE 802.1X supplicant on the client in conjunction with a RADIUS server

- MAC-based authentication

  Client is authenticated with the RADIUS server based on the client's MAC address

- Identity-driven security and access control

  – Per-user ACLs

  Permits or denies user access to specific network resources based on user identity and time of day, allowing multiple types of users on the same network to access specific network services without risking network security or providing unauthorized access to sensitive data

  – Automatic VLAN assignment

  Automatically assigns users to the appropriate VLAN based on their identities

- Secure management access

  Delivers secure encryption of all access methods (CLI, GUI, or MIB) through SSHv2, SSL, HTTPS, and/or SNMPv3

- Secure FTP/SCP

  Allows secure file transfer to and from the switch; protects against unwanted file downloads or unauthorized copying of a switch configuration file

- Guest VLAN

  Provides a browser-based environment to authenticated clients that is similar to IEEE 802.1X

- Port security

  Allows access only to specified MAC addresses, which can be learned or specified by the administrator

- Port isolation

  Secures and adds privacy, and prevents malicious attackers from obtaining user information

- STP BPDU port protection

  Blocks Bridge Protocol Data Units (BPDUs) on ports that do not require BPDUs, preventing forged BPDU attacks

- STP root guard

  Protects the root bridge from malicious attacks or configuration mistakes

- DHCP protection

  Blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks

- RADIUS/HWTACACS

  Eases switch management security administration by using a password authentication server

- Endpoint Admission Defense (EAD)

  Provides security policies to users accessing a network

- IPv6 source guard

  Helps prevent IPv6 spoofing attacks using ND Snooping as well as DHCPv6 Snooping

Convergence

- IEEE 802.1AB Link Layer Discovery Protocol (LLDP)

  Facilitates easy mapping using network management applications with LLDP automated device discovery protocol

- LLDP-MED (Media Endpoint Discovery)

  Defines a standard extension of LLDP that stores values for parameters such as QoS and VLAN to automatically configure network devices such as IP phones

- LLDP-CDP compatibility

  Receives and recognizes CDP packets from Cisco's IP phones for seamless interoperation

- IEEE 802.3at Power over Ethernet (PoE+)

  Provides up to 30 W per port that allows support of the latest PoE+-capable devices such as IP phones, wireless access points, and security cameras, as well as any IEEE 802.3af-compliant end device; eliminates the cost of additional electrical cabling and circuits that would otherwise be necessary in IP phone and WLAN deployments

- PoE allocations

  Supports multiple methods (automatic, IEEE 802.3af class, LLDP-MED, or user-specified) to allocate PoE power for more efficient energy savings

- Voice VLAN

  Automatically assigns VLAN and priority for IP phones, simplifying network configuration and maintenance

- IP multicast snooping (data-driven IGMP)

  Prevents flooding of IP multicast traffic

- Multicast Source Discovery Protocol (MSDP)

  Allows multiple PIM-SM domains to interoperate; is used for inter-domain multicast applications

Device support

- Pre-standard PoE support

  Detects and provides power to pre-standard PoE devices such as wireless LAN access points and IP phones

Additional information

- Green IT and power

  Improves energy efficiency through the use of the latest advances in silicon development; shuts off unused ports and utilizes variable-speed fans, reducing energy costs

- Green initiative support

  Provides support for RoHS and WEEE regulations

- Unified HPE Comware operating system with modular architecture

  Provides an easy-to-enhance-and-extend feature set, which doesn't require whole-scale changes; all switching, routing, and security platforms leverage the Comware OS, a common unified modular operating system

- Energy Efficient Ethernet (EEE) support

  Reduces power consumption in accordance with IEEE 802.3az

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 5130 HI Switch Series

Specifications

	 **HPE 5130 24 G 4SFP+ HI with 1 interface slot switch (JH323A)**	 **HPE 5130 48 G 4SFP+ HI with 1 interface slot switch (JH324A)**
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); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only; Ports 1–8 support MACsec 4 SFP+ 10GbE ports 1 port expansion module slot Supports a maximum of 6 SFP+ ports or 2 1/10GBASE-T ports, with optional module	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); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only; Ports 1–8 support MACSec 4 SFP+ 10GbE ports 1 port expansion module slot Supports a maximum of 6 SFP+ ports or 2 1/10GBASE-T ports, with optional module
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
Power supplies	2 power supply slots 1 minimum power supply required (ordered separately)	2 power supply slots 1 minimum power supply required (ordered separately)
Fan tray	Airflow direction is Front (port side) to Back (power cord side)	Airflow direction is Front (port side) to Back (power cord side)
Physical characteristics		
Dimensions	17.32(w) x 14.17(d) x 1.72(h) in. (44.00 x 36.00 x 4.37 cm) (1U height)	17.32(w) x 14.17(d) x 1.72(h) in. (44.0 x 36 x 4.37 cm) (1U height)
Weight	16.53 lb (7.5 kg) shipping weight	16.53 lb (7.5 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
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)
Performance		
	IPv6 Ready Certified	IPv6 Ready Certified
1000 Mb Latency	< 5 µs	< 5 µs
10 Gbps Latency	< 3 µs	< 3 µs
Throughput	Up to 154.8 Mpps	Up to 190.5 Mpps
Routing/Switching capacity	168 Gbps	216 Gbps
Routing table size	Up to 4K entries (IPv4), up to 2K entries (IPv6)	Up to 4K entries (IPv4), up to 2K entries (IPv6)
MAC address table size	32768 entries	32768 entries
Environment		
Operating temperature	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 90%, noncondensing	10% to 90%, noncondensing
Nonoperating/Storage temperature	-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
Acoustic	Low-speed fan: 52.8 dB, High-speed fan: 66.7 dB; ISO 7779	Low-speed fan: 49.9 dB, High-speed fan: 64.8 dB; ISO 7779

HPE FlexNetwork 5130 HI Switch Series

Specifications (continued)

	HPE 5130 24 G 4SFP+ HI with 1 interface slot switch (JH323A)	HPE 5130 48 G 4SFP+ HI with 1 interface slot switch (JH324A)
Electrical characteristics		
Frequency	50/60 Hz	50/60 Hz
Maximum heat dissipation	365 BTU/hr (385.08 kJ/hr), ranges from 167 BTU/hr to 392 BTU/hr, depending on power supply configuration	419 BTU/hr (442.04 kJ/hr), ranges from 201 BTU/hr to 443 BTU/hr, depending on power supply configuration
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)
Maximum power rating	107 W	150 W
Idle power	55 W	70 W
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.
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)
Emissions	EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 61000-4-11:2004; ANSI C63.4-2009; EN 61000-3-3:2008; VCCI V-4/2012.04; EN 6100-3-2:2006+A1:2009+A2:2009; EN 61000-3-2:2006+A1:2009+A2:2009; EN 61000-4-3:2006; EN 61000-4-4:2012; EN 61000-4-5:2006; EN 61000-4-6:2009; AS/NZS CISPR 22:2009 Class A; CISPR 22:2008 Class A; EN 55022:2010 Class A; EN 61000-4-29: 2000; CISPR 24:2010; EN 300 386 V1.6.1; VCCI V-3/2013.04 Class A	EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 61000-4-11:2004; ANSI C63.4-2009; EN 61000-3-3:2008; VCCI V-4/2012.04; EN 6100-3-2:2006+A1:2009+A2:2009; EN 61000-3-2:2006+A1:2009+A2:2009; EN 61000-4-3:2006; EN 61000-4-4:2012; EN 61000-4-5:2006; EN 61000-4-6:2009; AS/NZS CISPR 22:2009 Class A; CISPR 22:2008 Class A; EN 55022:2010 Class A; EN 61000-4-29: 2000; CISPR 24:2010; EN 300 386 V1.6.1; VCCI V-3/2013.04 Class A
Immunity		
Generic	EN 55024	EN 55024
ESD	EN300 386	EN300 386
Management	IMC—Intelligent Management Center; command-line interface; SNMP manager	IMC—Intelligent Management Center; 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.

HPE FlexNetwork 5130 HI Switch Series

Specifications (continued)

	 **HPE 5130 24 G POE+ 4SFP+ HI with 1 interface slot switch (JH325A)**	 **HPE 5130 48 G POE+ 4SFP+ HI with 1 interface slot switch (JH326A)**
I/O ports and slots	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+); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only; Ports 1–8 support MACSec 4 SFP+ 10GbE ports 1 port expansion module slot Supports a maximum of 6 SFP+ ports or 2 1/10GBASE-T ports, with optional module	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+); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only; Ports 1–8 support MACSec 4 SFP+ 10GbE ports 1 port expansion module slot Supports a maximum of 6 SFP+ ports or 2 1/10GBASE-T ports, with optional module
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
Power supplies	2 power supply slots 1 minimum power supply required (ordered separately)	2 power supply slots 1 minimum power supply required (ordered separately)
Fan tray	Airflow direction is Front (port side) to Back (power cord side)	Airflow direction is Front (port side) to Back (power cord side)
Physical characteristics		
Dimensions	17.32(w) x 18.11(d) x 1.72(h) in. (43.99 x 46 x 4.37 cm) (1U height)	17.32(w) x 18.11(d) x 1.72(h) in. (43.99 x 46 x 4.37 cm) (1U height)
Weight	27.56 lb (12.5 kg) shipping weight	27.56 lb (12.5 kg) shipping weight
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
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)
Performance		
	IPv6 Ready Certification	IPv6 Ready Certification
1000 Mb Latency	< 5 µs	< 5 µs
10 Gbps Latency	< 3 µs	< 3 µs
Throughput	Up to 154.8 Mpps	Up to 190.5 Mpps
Routing/Switching capacity	168 Gbps	216 Gbps
Routing table size	Up to 4K entries (IPv4), up to 2K entries (IPv6)	Up to 4K entries (IPv4), up to 2K entries (IPv6)
MAC address table size	32768 entries	32768 entries
Environment		
Operating temperature	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 90%, noncondensing	10% to 90%, noncondensing
Nonoperating/Storage temperature	-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
Acoustic	Low-speed fan: 57.6 dB, High-speed fan: 66.9 dB; ISO 7779	Low-speed fan: 57.6 dB, High-speed fan: 66.9 dB; ISO 7779

HPE FlexNetwork 5130 HI Switch Series

Specifications (continued)

	HPE 5130 24 G POE+ 4SFP+ HI with 1 interface slot switch (JH325A)	HPE 5130 48 G POE+ 4SFP+ HI with 1 interface slot switch (JH326A)
Electrical characteristics		
Frequency	50/60 Hz	50/60 Hz
Maximum heat dissipation	2217 BTU/hr (3599.66 kJ/hr), ranges from 228 BTU/hr to 3412 BTU/hr, depending on power supply configuration	2286 BTU/hr (2411.73 kJ/hr), ranges from 256 BTU/hr to 6142 BTU/hr, depending on power supply configuration
Voltage	100–240 VAC, rated (90–264 VAC, max) (depending on power supply chosen)	100–240 VAC, rated (90–264 VAC, max) (depending on power supply chosen)
Maximum power rating	650 W	670 W
Idle power	67 W	75 W
PoE power	740 W PoE+	1440 W PoE+
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. PoE+ power range is from 450 W to 740 W. PoE+ power is the power supplied by the internal power supply(ies). 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 450 W to 1440 W. PoE+ power is the power supplied by the internal power supply(ies). 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)
Emissions	EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 61000-4-11:2004; ANSI C63.4-2009; EN 61000-3-3:2008; VCCI V-4/2012.04; EN 6100-3-2:2006+A1:2009+A2:2009; EN 61000-3-2:2006+A1:2009+A2:2009; EN 61000-4-3:2006; EN 61000-4-4:2012; EN 61000-4-5:2006; EN 61000-4-6:2009; AS/NZS CISPR 22:2009 Class A; CISPR 22:2008 Class A; EN 55022:2010 Class A; EN 61000-4-29: 2000; CISPR 24:2010; EN 300 386 V1.6.1; VCCI V-3/2013.04 Class A	EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 61000-4-11:2004; ANSI C63.4-2009; EN 61000-3-3:2008; VCCI V-4/2012.04; EN 6100-3-2:2006+A1:2009+A2:2009; EN 61000-3-2:2006+A1:2009+A2:2009; EN 61000-4-3:2006; EN 61000-4-4:2012; EN 61000-4-5:2006; EN 61000-4-6:2009; AS/NZS CISPR 22:2009 Class A; CISPR 22:2008 Class A; EN 55022:2010 Class A; EN 61000-4-29: 2000; CISPR 24:2010; EN 300 386 V1.6.1; VCCI V-3/2013.04 Class A
Immunity		
Generic	EN 55024	EN 55024
ESD	EN300 386	EN300 386
Management	IMC—Intelligent Management Center; command-line interface; SNMP manager	IMC—Intelligent Management Center; 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.

Standards and protocols
(Applies to all products in series)

Device management	RFC 1155 Structure and Mgmt Information (SMIv1) RFC 1157 SNMPv1/v2c RFC 1305 NTPv3 RFC 2573 (SNMPv3 Applications) RFC 2578 SMIv2	RFC 2819 (RMON groups Alarm, Event, History, and Statistics only) RFC 3416 (SNMP Protocol Operations v2) RFC 3417 (SNMP Transport Mappings) HTML and Telnet management	Multiple Configuration Files SNMPv3 and RMON RFC support SSHv1/ SSHv2 Secure Shell TACACS/TACACS+
General protocols	IEEE 802.1ad QinQ IEEE 802.1ak Multiple Registration Protocol (MRP) and Multiple VLAN Registration Protocol (MVRP) IEEE 802.1AE MACsec IEEE 802.1AX-2008 Link Aggregation IEEE 802.1D MAC Bridges IEEE 802.1p Priority IEEE 802.1Q (GVRP) IEEE 802.1Q VLANs IEEE 802.1s Multiple Spanning Trees IEEE 802.1v VLAN classification by Protocol and Port IEEE 802.1w Rapid Reconfiguration of Spanning Tree IEEE 802.1X PAE IEEE 802.3 Type 10BASE-T IEEE 802.3ab 1000BASE-T IEEE 802.3ac VLAN Tagging Extension IEEE 802.3ad Link Aggregation Control Protocol (LACP) IEEE 802.3ae 10-Gigabit Ethernet IEEE 802.3af Power over Ethernet IEEE 802.3at Power over Ethernet Plus IEEE 802.3az Energy Efficient Ethernet IEEE 802.3i 10BASE-T 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 855 Telnet Option Specification RFC 894 IP over Ethernet RFC 950 Internet Standard Subnetting Procedure RFC 951 BOOTP RFC 959 File Transfer Protocol (FTP)	RFC 1027 Proxy ARP RFC 1042 IP Datagrams RFC 1071 Computing the Internet Checksum RFC 1123 Requirements for Internet Hosts RFC 1166 IP Addresses RFC 1213 Management Information Base for Network Management of TCP/IP-based Internets RFC 1256 ICMP Router Discovery Protocol (IRDP) RFC 1305 NTPv3 RFC 1350 TFTP Protocol (revision 2) RFC 1519 CIDR RFC 1533 DHCP Options and BOOTP Vendor Extensions RFC 1591 DNS (client only) RFC 1643 Definitions of Managed Objects for the Ethernet-like Interface Types RFC 1812 IPv4 Routing RFC 1866 Hypertext Markup Language-2.0 RFC 1901 Introduction to Community-based SNMPv2 RFC 1902-1907 SNMPv2 RFC 2131 DHCP RFC 2236 IGMP Snooping RFC 2462 IPv6 Stateless Address Autoconfiguration RFC 2474 Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers RFC 2475 Architecture for Differentiated Services RFC 2597 Assured Forwarding PHB Group RFC 2616 HTTP Compatibility v1.1 RFC 2665 Definitions of Managed Objects for the Ethernet-like Interface Types RFC 2668 Definitions of Managed Objects for IEEE 802.3 Medium Attachment Units (MAUs)	RFC 2865 Remote Authentication Dial In User Service (RADIUS) RFC 2866 RADIUS Accounting RFC 2868 RADIUS Attributes for Tunnel Protocol Support RFC 3046 DHCP Relay Agent Information Option RFC 3246 Expedited Forwarding PHB RFC 3414 User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3) RFC 3415 View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP) RFC 3416 Protocol Operations for SNMP RFC 3417 Transport Mappings RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP) RFC 3576 Ext to RADIUS (CoA only) RFC 3580 IEEE 802.1X Remote Authentication Dial In User Service (RADIUS) Usage Guidelines RFC 3587 IPv6 Global Unicast Address Format RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6 RFC 4213 Basic IPv6 Transition Mechanisms RFC 4291 IP Version 6 Addressing Architecture RFC 4541 Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches RFC 4575 A Session Initiation Protocol (SIP) Event Package for Conference State RFC 4675 RADIUS VLAN & Priority RFC 5095 Deprecation of Type 0 Routing Headers in IPv6 802.1r–GARP Proprietary Attribute Registration Protocol (GPRP)
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 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 Autoconfiguration RFC 6724 Default Address Selection for Internet Protocol Version 6 (IPv6)

Standards and protocols
(Applies to all products in series)

MIBs	RFC 1157 A Simple Network Management Protocol (SNMP) 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 802.1p and IEEE 802.1Q Bridge MIB	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 2579 Textual Conventions for SMIv2 RFC 1215 A 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 (client only) 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

HPE FlexNetwork 5130 HI Switch Series accessories

Modules	**NEW** HPE 5130/5510 10GBASE-T 2-port Module (JH156A)[1] **NEW** HPE 5130/5510 10GbE SFP+ 2-port Module (JH157A)[1]
Transceivers	HPE X125 1G SFP LC LH40 1310nm Transceiver (JD061A)[2] HPE X120 1G SFP LC LH40 1550nm Transceiver (JD062A)[2] HPE X125 1G SFP LC LH70 Transceiver (JD063B)[2] HPE X120 1G SFP LC LH100 Transceiver (JD103A)[2] HPE X120 1G SFP LC SX Transceiver (JD118B)[2] HPE X120 1G SFP LC LX Transceiver (JD119B)[2] HPE X120 1G SFP LC BX 10-U Transceiver (JD098B)[2] HPE X120 1G SFP LC BX 10-D Transceiver (JD099B)[2] HPE X120 1G SFP RJ45 1000BASE-T Transceiver (JD089B)[2] HPE X130 10G SFP+ LC SR Transceiver (JD092B) HPE X130 10G SFP+ LC LR Transceiver (JD094B) HPE X240 10G SFP+ SFP+ 0.65m DAC Campus-Cable (JH693A) HPE X240 10G SFP+ SFP+ 1.2m DAC Campus-Cable (JH694A) HPE X240 10G SFP+ SFP+ 3m DAC Campus-Cable (JH695A) HPE X240 10G SFP+ SFP+ 5m DAC Cable (JG081C) HPE X130 10G SFP+ LC ER 40km Transceiver (JG234A)[3] HPE X130 10G SFP+ LC LH 80km Transceiver (JG915A)[3] HPE X130 10G SFP+ LC LRM Transceiver (JD093B)[3]

[1] Module supports MACsec

[2] Transceiver cannot be used on optional module JH157A

[3] Transceiver can only be used on optional module JH157A

HPE FlexNetwork 5130 HI Switch Series accessories (continued)

Cables	Aruba X2C2 RJ45 to DB9 Console Cable (JL448A) HPE 0.5 m Multimode OM3 LC/LC Optical Cable (AJ833A) HPE 1 m Multimode OM3 LC/LC Optical Cable (AJ834A) HPE 2 m Multimode OM3 LC/LC Optical Cable (AJ835A) HPE 5 m Multimode OM3 LC/LC Optical Cable (AJ836A) HPE 15 m Multimode OM3 LC/LC Optical Cable (AJ837A) HPE 30 m Multimode OM3 LC/LC Optical Cable (AJ838A) HPE 50 m Multimode OM3 LC/LC Optical Cable (AJ839A) HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable (QK732A) HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable (QK733A) HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable (QK734A) HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable (QK735A) HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable (QK736A) HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable (QK737A)
HPE 5130 24G 4SFP+ HI with 1 Interface Slot Switch (JH323A)	HPE X361 150W 100-240VAC to 12VDC Power Supply (JD362B)[4] HPE X361 150W 48-60VDC to 12VDC Power Supply (JD366B)[4]
HPE 5130 48G 4SFP+ HI with 1 Interface Slot Switch (JH324A)	HPE X361 150W 100-240VAC to 12VDC Power Supply (JD362B)[4] HPE X361 150W 48-60VDC to 12VDC Power Supply (JD366B)[4]
HPE 5130 24G PoE+ 4SFP+ HI with 1 Interface Slot Switch (JH325A)	HPE X362 720W 100-240VAC to 56VDC PoE Power Supply (JG544A)[4] HPE X362 1110W 115-240VAC to 56VDC PoE Power Supply (JG545A)[4]
HPE 5130 48G PoE+ 4SFP+ HI with 1 Interface Slot Switch (JH326A)	HPE X362 720W 100-240VAC to 56VDC PoE Power Supply (JG544A)[4] HPE X362 1110W 115-240VAC to 56VDC PoE Power Supply (JG545A)[4]

[4] Products covered by 1 year warranty. See details at **hpe.com/networking/warrantyquickref**

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