

### Overview

## HP FlexFabric 5930 Switch Series

### Models

HP FlexFabric 5930-32QSFP+ Switch	JG726A
HP FlexFabric 5930-4Slot Switch	JH179A
HP FlexFabric 5930-2Slot+2QSFP+ Switch	JH178A

### Key features

- Cut-through with ultra-low-latency and wire speed
- VXLAN VTEP support for virtualized environments
- High-density 10GbE and 40GbE spine/ToR connectivity
- IPv6 support with full L2 and L3 features
- Convergence-ready with DCB, FCoE, and TRILL

### Product overview

The HP FlexFabric 5930 Switch Series is a family of high-density, ultra-low-latency, top-of-rack (ToR) switches that is part of the HP FlexNetwork architecture's HP FlexFabric solution.

Ideally suited for deployment at the aggregation or server access layer of large enterprise data centers, the HP 5930 Switch Series is also powerful enough for deployment at the core layer of medium-sized enterprises.

With the increase in virtualized applications and server-to-server traffic, customers now require spine and ToR switch innovations that will meet their needs for higher-performance server connectivity, convergence of Ethernet and storage traffic, the capability to handle virtual environments, and ultra-low-latency all in a single device- the HP FlexFabric 5930 Switch Series.

### Features and benefits

#### Quality of Service (QoS)

- **Powerful QoS features**
  - **Flexible queue scheduling**  
including Strict Priority (SP), WRR, WDRR, WFQ, SP+WRR, SP+WDRR, SP+WFQ, Configurable Buffer, Time range, Queue Shaping, CAR with 8kbps granularity.
  - **Packet filtering and remarking:**  
packet filtering at L2 (Layer 2) through L4 (Layer 4); flow classification based on source MAC address, destination MAC address, source IP (IPv4/IPv6) address, destination IP (IPv4/IPv6) address, port, protocol, and VLAN.

#### Data center optimized

- **Flexible high port density**  
the HP FlexFabric 5930 Switch Series enables scaling of the server edge with 10GbE and 40GbE spine and ToR deployments to new heights with a high-density 32-port fixed port switch in a 1RU design, a 2 Slot Modular design with Two 40GbE QSFP+ ports and a 4 Slot Design. Support for 10GbE SFP+, 10GBASE-T, Converged Port 1/10GbE or 4/8Gbps Fiber Channel, and 40GbE ports.
- **High-performance switching**  
cut-through and nonblocking architecture delivers low latency (~1 microsecond for 10GbE) for very demanding enterprise applications; the switch delivers high-performance switching capacity and wire-speed packet forwarding
- **Higher scalability**  
HP Intelligent Resilient Framework (IRF) technology simplifies the architecture of server access networks; up to nine HP 5930 switches can be combined to deliver unmatched scalability of virtualized access layer switches and flatter two-tier networks using IRF, which reduces cost and complexity

### Overview

- **Advanced modular operating system**  
Comware v7 software's modular design and multiple processes bring native high stability, independent process monitoring, and restart; the OS also allows individual software modules to be upgraded for higher availability and supports enhanced serviceability functions like hitless software upgrades with single-chassis ISSU
- **TRILL, SPB and EVB/VEPA**  
TRansparent Interconnection of Lots of Links (TRILL) is supported including support of TRILL with IRF, TRILL ECMP up to 8 paths. Support for Shortest Path Bridging (IEEE 802.1aq) with ECMP up to 8 paths. Edge Virtual Bridging with Virtual Ethernet Port Aggregator (EVB/VEPA) provides connectivity into the virtual environment for a data center-ready environment
- **Reversible airflow**  
enhanced for data center hot-cold aisle deployment with reversible airflow—for either front-to-back or back-to-front airflow
- **Redundant fans and power supplies**  
Internal redundant and hot-pluggable power supplies and dual fan trays enhance reliability and availability
- **Lower OPEX and greener data center**  
provide reversible airflow and advanced chassis power management
- **Data Center Bridging (DCB) protocols**  
provides support for IEEE 802.1Qbb Priority Flow Control (PFC), Data Center Bridging Exchange (DCBX), IEEE 802.1Qaz Enhanced Transmission Selection (ETS), Explicit Congestion Notification (ECN) for converged FCoE, iSCSI and RoCE environments.
- **FCoE support**  
provides support T11 standards-compliant FC-BB-5 Fibre Channel over Ethernet (FCoE), including FCoE Initialization Protocol (FIP), FCP, Fiber Channel enhanced port types VE, TE and VF, NPV, NPIV, Fabric Name Server, RSCN, Login Services, and name-server zoning, Per-VSAN Fabric Services, FSPF, Standard Zoning and Fiber Channel Ping.
- **Jumbo frames**  
with frame sizes of up to 10,000 bytes on Gigabit Ethernet and 10-Gigabit ports, allows high-performance remote backup and disaster-recovery services to be enabled
- **VXLAN Support**  
VXLAN Layer 2 Gateway support for up to 4k tunnels

### Manageability

- **Full-featured console**  
provides complete control of the switch with a familiar CLI
- **Troubleshooting**
  - **Ingress and egress port monitoring**  
enable network problem solving
  - **Traceroute and ping**  
enable testing of network connectivity
- **Multiple configuration files**  
allow multiple configuration files to be stored to a flash image
- **sFlow (RFC 3176)**  
provides wire-speed traffic accounting and monitoring
- **SNMP v1, v2c and v3**  
facilitate centralized discovery, monitoring, and secure management of networking devices
- **Out-of-band interface**  
isolates management traffic from user data plane traffic for complete isolation and total reachability, no matter what happens in the data plane
- **Remote configuration and management**  
delivered through a secure command-line interface (CLI) over Telnet and SSH; Role-Based Access Control (RBAC) provides multiple levels of access; Configuration Rollback and multiple configurations on the flash provide ease of operation; remote visibility is provided with sFlow and SNMP v1/v2/v3, and is fully supported in HP Intelligent Management Center (IMC)
- **ISSU and hot patching**

### Overview

provides hitless software upgrades with single-unit In Services Software Upgrade (ISSU) and hitless patching of the modular operating system

- **Autoconfiguration**  
provides automatic configuration via DHCP autoconfiguration
- **NTP, SNTP and PTP Support**  
synchronize timekeeping among distributed time servers and clients; Support for Network Time Protocol (NTP), Secure Network Time Protocol (SNTP) and Precision Time Protocol (PTP) IEEE 1588v2 (2008)

### Resiliency and high availability

- **HP Intelligent Resilient Framework (IRF) technology**  
enables an HP FlexFabric to deliver resilient, scalable, and secured data center networks for physical and virtualized environments; groups up to nine HP 5930 switches in an IRF configuration, allowing them to be configured and managed as a single switch with a single IP address; simplifies ToR deployment and management, reducing data center deployment and operating expenses
- **IEEE 802.1w Rapid Convergence Spanning Tree Protocol**  
increases network uptime through faster recovery from failed links
- **IEEE 802.1s Multiple Spanning Tree**  
provides high link availability in multiple VLAN environments by allowing multiple spanning trees
- **Virtual Router Redundancy Protocol (VRRP)**  
allows groups of two routers to dynamically back each other up to create highly available routed environments
- **Hitless patch upgrades**  
allows patches and new service features to be installed without restarting the equipment, increasing network uptime and facilitating maintenance
- **Ultrafast protocol convergence (< 50 ms) with standard-based failure detection—Bidirectional Forwarding Detection (BFD)**  
enables link connectivity monitoring and reduces network convergence time for RIP, OSPF, BGP, IS-IS, VRRP, MPLS, and IRF
- **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
- **Graceful restart**  
allows routers to indicate to others their capability to maintain a routing table during a temporary shutdown and significantly reduces convergence times upon recovery; supports OSPF, BGP, and IS-IS

### Layer 2 switching

- **MAC-based VLAN**  
provides granular control and security; uses RADIUS to map a MAC address/user to specific VLANs
- **Address Resolution Protocol (ARP)**  
supports static, dynamic, and reverse ARP and ARP proxy
- **IEEE 802.3x Flow Control**  
provides intelligent congestion management via PAUSE frames
- **Ethernet Link Aggregation**  
provides IEEE 802.3ad Link Aggregation of up to 128 groups of 32 ports; support for LACP, LACP Local Forwarding First, and LACP Short-time provides a fast, resilient environment that is ideal for the data center
- **Spanning Tree Protocol (STP)**  
supports STP (IEEE 802.1D), Rapid STP (RSTP, IEEE 802.1w), and Multiple STP (MSTP, IEEE 802.1s)
- **VLAN support**  
provides support for 4,096 VLANs based on port, MAC address, IPv4 subnet, protocol, and guest VLAN; supports VLAN mapping
- **IGMP support**  
provides support for IGMP Snooping, Fast-Leave, and Group-Policy; IPv6 IGMP Snooping provides Layer 2 optimization of multicast traffic

### Overview

- **DHCP support at Layer 2**  
provides full DHCP Snooping support for DHCP Snooping Option 82, DHCP Relay Option 82, DHCP Snooping Trust, and DHCP Snooping Item Backup

### 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 and supports client and server; DHCP Relay enables DHCP operation across subnets
- **Operations, administration and maintenance (OAM) support**  
provides support for Connectivity Fault Management (IEEE 802.1AG) and Ethernet in the First Mile (IEEE 802.3AH); provides additional monitoring that can be used for fast fault detection and recovery

### Layer 3 routing

- **Virtual Router Redundancy Protocol (VRRP) and VRRP Extended**  
allow quick failover of router ports
- **Policy-based routing**  
makes routing decisions based on policies set by the network administrator
- **Equal-Cost Multipath (ECMP)**  
enables multiple equal-cost links in a routing environment to increase link redundancy and scale bandwidth
- **Layer 3 IPv4 routing**  
provides routing of IPv4 at media speed; supports static routes, RIP and RIPv2, OSPF, BGP, and IS-IS
- **Open shortest path first (OSPF)**  
delivers faster convergence; uses this link-state routing Interior Gateway Protocol (IGP), which supports ECMP, NSSA, and MD5 authentication for increased security and graceful restart for faster failure recovery
- **Border Gateway Protocol 4 (BGP-4)**  
delivers an implementation of the Exterior Gateway Protocol (EGP) utilizing path vectors; uses TCP for enhanced reliability for the route discovery process; reduces bandwidth consumption by advertising only incremental updates; supports extensive policies for increased flexibility; scales to very large networks
- **Intermediate system to intermediate system (IS-IS)**  
uses a path vector Interior Gateway Protocol (IGP), which is defined by the ISO organization for IS-IS routing and extended by IETF RFC 1195 to operate in both TCP/IP and the OSI reference model (Integrated IS-IS)
- **Static IPv6 routing**  
provides simple manually configured IPv6 routing
- **Dual IP stack**  
maintains separate stacks for IPv4 and IPv6 to ease the transition from an IPv4-only network to an IPv6-only network design
- **Routing Information Protocol next generation (RIPng)**  
extends RIPv2 to support IPv6 addressing
- **OSPFv3**  
provides OSPF support for IPv6
- **BGP+**  
extends BGP-4 to support Multiprotocol BGP (MBGP), including support for IPv6 addressing
- **IS-IS for IPv6**  
extends IS-IS to support IPv6 addressing
- **IPv6 tunneling**  
allows IPv6 packets to traverse IPv4-only networks by encapsulating the IPv6 packet into a standard IPv4 packet; supports manually configured, 6to4, and Intra-Site Automatic Tunnel Addressing Protocol (ISATAP) tunnels; is an important element for the transition from IPv4 to IPv6

### Overview

- **Policy routing**  
allows custom filters for increased performance and security; supports ACLs, IP prefix, AS paths, community lists, and aggregate policies
- **Bidirectional Forwarding Detection (BFD)**  
enables link connectivity monitoring and reduces network convergence time for RIP, OSPF, BGP, IS-IS, VRRP, MPLS, and IRF
- **Multicast Routing PIM Dense and Sparse modes**  
provides robust support of multicast protocols
- **Layer 3 IPv6 routing**  
provides routing of IPv6 at media speed; supports static routing, RIPng, OSPFv3, BGP4+ for IPv6, and IS-ISv6

### 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

### Management

- **USB support**
  - **File copy**  
allows users to copy switch files to and from a USB flash drive
- **Multiple configuration files**  
stores easily to the flash image
- **SNMPv1, v2c, and v3**  
facilitate centralized discovery, monitoring, and secure management of networking devices
- **Out-of-band interface**  
isolates management traffic from user data plane traffic for complete isolation and total reachability, no matter what happens in the data plane
- **Port mirroring**  
enables traffic on a port to be simultaneously sent to a network analyzer for monitoring
- **Remote configuration and management**  
is available through a command-line interface (CLI)
- **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
- **Command authorization**  
leverages RADIUS to link a custom list of CLI commands to an individual network administrator's login; an audit trail documents activity
- **Dual flash images**  
provides independent primary and secondary operating system files for backup while upgrading
- **Command-line interface (CLI)**  
provides a secure, easy-to-use CLI for configuring the module via SSH or a switch console; provides direct real-time session visibility
- **Logging**  
provides local and remote logging of events via SNMP (v2c and v3) and syslog; provides log throttling and log filtering to reduce the number of log events generated
- **Management interface control**  
provides management access through a modem port and terminal interface, as well as in-band and out-of-band Ethernet ports; provides access through terminal interface, Telnet, or secure shell (SSH)

### Overview

- **Industry-standard CLI with a hierarchical structure**  
reduces training time and expenses, and increases productivity in multivendor installations
- **Management security**  
restricts access to critical configuration commands; offers multiple privilege levels with password protection; ACLs provide Telnet and SNMP access; local and remote syslog capabilities allow logging of all access
- **Information center**  
provides a central repository for system and network information; aggregates all logs, traps, and debugging information generated by the system and maintains them in order of severity; outputs the network information to multiple channels based on user-defined rules
- **Network management**  
HP Intelligent Management Center (IMC) centrally configures, updates, monitors, and troubleshoots
- **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

### Security

- **Access control lists (ACLs)**  
provide IP Layer 3 filtering based on source/destination IP address/subnet and source/destination TCP/UDP port number
- **RADIUS/TACACS+**  
eases switch management security administration by using a password authentication server
- **Secure shell**  
encrypts all transmitted data for secure remote CLI access over IP networks
- **IEEE 802.1X and RADIUS network logins**  
controls port-based access for authentication and accountability
- **Port security**  
allows access only to specified MAC addresses, which can be learned or specified by the administrator

### Convergence

- **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

### Warranty and support

- **1-year warranty**  
advance hardware replacement with 10-calendar-day delivery (available in most countries)
- **Electronic and telephone support**  
limited electronic and business-hours telephone support is available from HP for the entire warranty period; to reach our support centers, refer to [www.hp.com/networking/contact-support](http://www.hp.com/networking/contact-support); for details on the duration of support provided with your product purchase, refer to [www.hp.com/networking/warrantysummary](http://www.hp.com/networking/warrantysummary)
- **Software releases**  
to find software for your product, refer to [www.hp.com/networking/support](http://www.hp.com/networking/support); for details on the software releases available with your product purchase, refer to [www.hp.com/networking/warranty](http://www.hp.com/networking/warranty)

### Configuration

**Build To Order: BTO is a standalone unit with no integration. BTO products ship standalone are not part of a CTO or Rack-Shippable solution.**

#### Standard Switch Enclosures

##### HP FF 5930-32QSFP+ Switch

- 32 QSFP+ ports (min=0 \ max=32)
- Must select min 1 Power Supply
- Must select min 2 Fan Trays
- 1U - Height

JG726A  
See Configuration  
Note:1

##### HP FF 5930-2Slot+2QSFP+ Switch

- 2 QSFP+ ports (min=0 \ max=2)
- 2 port expansion module slots
- Must select min 1 Power Supply
- Must select min 2 Fan Trays
- 1U - Height

JH178A  
See Configuration  
Note:1

##### HP FF 5930-4Slot Switch

- 4 port expansion module slots
- Must select min 1 Power Supply
- Must select min 2 Fan Trays
- 2U - Height

JH179A

#### Configuration Rules:

Note 1      The following 40G Transceivers install into this switch:  
JG661A - HP X140 40G QSFP+ LC LR4 SM XCVR  
JG325B - HP X140 40G QSFP+ MPO SR4 XCVR  
JG709A - HP X140 40G QSFP+ CSR4 300m XCVR  
JG326A - HP X240 40G QSFP+ QSFP+ 1m DAC Cable  
JG327A - HP X240 40G QSFP+ QSFP+ 3m DAC Cable  
JG328A - HP X240 40G QSFP+ QSFP+ 5m DAC Cable  
JG329A - HP X240 QSFP+ 4x10G SFP+ 1m DAC Cable  
JG330A - HP X240 QSFP+ 4x10G SFP+ 3m DAC Cable  
JG331A - HP X240 QSFP+ 4x10G SFP+ 5m DAC Cable

### Box Level Integration CTO Models

#### CTO Solution Sku

##### HP 59xx CTO Switch Solution

- SSP trigger sku

JG505A

#### CTO Switch Chassis

##### HP FF 5930-32QSFP+ Switch

- 32 QSFP+ ports (min=0 \ max=32)
- Must select min 1 Power Supply

JG726A  
See Configuration  
Note:1, 5

### Configuration

- Must select min 2 Fan Tray
- 1U - Height

#### HP FF 5930-2Slot+2QSFP+ Switch

- 2 QSFP+ ports (min=0 \ max=2)
- 2 port expansion module slots
- Must select min 1 Power Supply
- Must select min 2 Fan Trays
- 1U - Height

JH178A

See Configuration  
Note:1, 5

#### HP FF 5930-4Slot Switch

- 4 port expansion module slots
- Must select min 1 Power Supply
- Must select min 2 Fan Trays
- 2U - Height

JH179A

See Configuration  
Note:5

### Configuration Rules:

Note 1 The following 40G Transceivers install into this switch: (Use #0D1 or #B01 quoted to switch if switch is CTO) - if applicable  
JG661A - HP X140 40G QSFP+ LC LR4 SM XCVR  
JG325B - HP X140 40G QSFP+ MPO SR4 XCVR  
JG709A - HP X140 40G QSFP+ CSR4 300m XCVR  
JG326A - HP X240 40G QSFP+ QSFP+ 1m DAC Cable  
JG327A - HP X240 40G QSFP+ QSFP+ 3m DAC Cable  
JG328A - HP X240 40G QSFP+ QSFP+ 5m DAC Cable  
JG329A - HP X240 QSFP+ 4x10G SFP+ 1m DAC Cable  
JG330A - HP X240 QSFP+ 4x10G SFP+ 3m DAC Cable  
JG331A - HP X240 QSFP+ 4x10G SFP+ 5m DAC Cable

Note 5 If the Switch Chassis is to be Box Level Factory Integrated (CTO), Then the #0D1 is required on the Switch Chassis and integrated to the JG505A - HP 59xx CTO Switch Solution. (Min 1/Max 1 Router per SSP)

## Rack Level Integration CTO Models

### CTO Switch Chassis

#### HP FF 5930-32QSFP+ Switch

- 32 QSFP+ ports (min=0 \ max=32)
- Must select min 1 Power Supply
- Must select min 2 Fan Tray
- 1U - Height

JG726A

See Configuration  
Note:1, 11

#### HP FF 5930-2Slot+2QSFP+ Switch

- 2 QSFP+ ports (min=0 \ max=2)
- 2 port expansion module slots
- Must select min 1 Power Supply
- Must select min 2 Fan Trays
- 1U - Height

JH178A

See Configuration  
Note:1, 11



### Configuration

#### HP FF 5930-4Slot Switch

- 4 port expansion module slots
- Must select min 1 Power Supply
- Must select min 2 Fan Trays
- 2U - Height

JH179A  
See Configuration  
Note:11

#### Configuration Rules:

- Note 1            The following 40G Transceivers install into this Switch: (Use #0D1 or #B01 if switch is CTO) - if applicable  
JG661A - HP X140 40G QSFP+ LC LR4 SM XCVR  
JG325B - HP X140 40G QSFP+ MPO SR4 XCVR  
JG709A - HP X140 40G QSFP+ CSR4 300m XCVR  
JG326A - HP X240 40G QSFP+ QSFP+ 1m DAC Cable  
JG327A - HP X240 40G QSFP+ QSFP+ 3m DAC Cable  
JG328A - HP X240 40G QSFP+ QSFP+ 5m DAC Cable  
JG329A - HP X240 QSFP+ 4x10G SFP+ 1m DAC Cable  
JG330A - HP X240 QSFP+ 4x10G SFP+ 3m DAC Cable  
JG331A - HP X240 QSFP+ 4x10G SFP+ 5m DAC Cable

- Note 11            If HP CTO Switch Chassis is selected for Rack Level Integration, Then the Switch needs to integrate (with #0D1) to the Rack.

Enter the following menu selections as integrated to the CTO Model X server above if order is factory built.

### Modules

(JH178A, JH187A) System (std 0 // max 2) User Selection (min 0 // max 2)

(JH179A, JH188A) System (std 0 // max 4) User Selection (min 0 // max 4)

#### HP 5930 24p SFP+ and 2p QSFP+ Mod

- 24 SFP+ ports (min=0 \ max=24)
- 2 QSFP+ ports (min=0 \ max=2)

JH180A  
See Configuration  
Note:1, 2

#### HP 5930 24p SFP+ and 2p QSFP+ Mod w Msec

- 24 SFP+ ports (min=0 \ max=24)
- 2 QSFP+ ports (min=0 \ max=2)

JH181A  
See Configuration  
Note:1, 2, 5

#### HP 5930 24p 10GBase-T and 2p QSFP+ Mod

- 24 1/10GBase-T ports
- 2 QSFP+ ports (min=0 \ max=2)

JH182A  
See Configuration  
Note:2

#### HP 5930 8-port QSFP+ Module

- 8 QSFP+ ports (min=0 \ max=8)

JH183A  
See Configuration  
Note:2

#### HP 5930 24p Conv Port and 2p QSFP+ Mod

- 24 Converged SFP+/FC ports (min=0 \ max=24)

JH184A  
See Configuration  
Note:1, 2, 3, 4, 5

### Configuration

- 2 QSFP+ ports (min=0 \ max=2)

#### Configuration Rules:

Note 1 The following Transceivers install into this Module's SFP+ Ports: (Use #0D1 or #B01 if switch is CTO) - if applicable

JD092B - HP X130 10G SFP+ LC SR Transceiver  
JD094B - HP X130 10G SFP+ LC LR Transceiver  
JG234A - HP X130 10G SFP+ LC ER 40km Transceiver  
JD095C - HP X240 10G SFP+ SFP+ 0.65m DAC Cable  
JD096C - HP X240 10G SFP+ SFP+ 1.2m DAC Cable  
JD097C - HP X240 10G SFP+ SFP+ 3m DAC Cable  
JG081C - HP X240 10G SFP+ SFP+ 5m DAC Cable  
JC784C - HP X240 10G SFP+ 7m DAC Cable  
JD061A - HP X125 1G SFP LC LH40 1310nm Transceiver  
JD062A - HP X120 1G SFP LC LH40 1550nm Transceiver  
JD063B - HP X125 1G SFP LC LH70 Transceiver  
JD089B - HP X120 1G SFP RJ45 T Transceiver  
JD098B - HP X120 1G SFP LC BX 10-U Transceiver  
JD099B - HP X120 1G SFP LC BX 10-D Transceiver  
JD118B - HP X125 1G SFP LC SX Transceiver  
JD119B - HP X120 1G SFP LC LX Transceiver

Note 2 The following 40G Transceivers install into this Module's QSFP+ Ports: (Use #0D1 or #B01 if switch is CTO) - if applicable

JG661A - HP X140 40G QSFP+ LC LR4 SM XCVR  
JG325B - HP X140 40G QSFP+ MPO SR4 XCVR  
JG709A - HP X140 40G QSFP+ CSR4 300m XCVR  
JG326A - HP X240 40G QSFP+ QSFP+ 1m DAC Cable  
JG327A - HP X240 40G QSFP+ QSFP+ 3m DAC Cable  
JG328A - HP X240 40G QSFP+ QSFP+ 5m DAC Cable  
JG329A - HP X240 QSFP+ 4x10G SFP+ 1m DAC Cable  
JG330A - HP X240 QSFP+ 4x10G SFP+ 3m DAC Cable  
JG331A - HP X240 QSFP+ 4x10G SFP+ 5m DAC Cable

Note 3 The following FC Transceivers install into this Module's SFP+/FC Ports: (Use #0D1 or BTO if switch is CTO) - if applicable

H6Z42A - HP 16Gb FC/10GbE 100m SFP+ XCVR  
AJ718A - HP 8Gb Short Wave FC SFP+ 1 Pack  
AW584A - HP 8Gb LW 10km FC SFP+ 1 Pk Transceiver

Note 4 The following FC Transceivers install into this Module's SFP+/FC Ports, and are a 4 Pack Bundle. (min=0 \ max=6)

JC908A - HP 16G FC/10G Eth SFP+ 4-XCVR Bndl

Note 5 The following Transceivers install into this Module's SFP+ Ports: (Use #0D1 or #B01 if switch is CTO) - if applicable

JD093B - HP X130 10G SFP+ LC LRM Transceiver

#### Remarks:

Watson: When JH184A module is selected, default 1 of the JC908A transceiver bundles.

### Configuration

#### Transceivers

##### SFP Transceivers

HP X125 1G SFP LC LH40 1310nm Transceiver	JD061A
HP X120 1G SFP LC LH40 1550nm Transceiver	JD062A
HP X125 1G SFP LC LH70 Transceiver	JD063B
HP X120 1G SFP RJ45 T Transceiver	JD089B
HP X120 1G SFP LC BX 10-U Transceiver	JD098B
HP X120 1G SFP LC BX 10-D Transceiver	JD099B
HP X125 1G SFP LC SX Transceiver	JD118B
HP X120 1G SFP LC LX Transceiver	JD119B

##### SFP+ Transceivers

HP X130 10G SFP+ LC SR Transceiver	JD092B
HP X130 10G SFP+ LC LRM Transceiver	JD093B
HP X130 10G SFP+ LC LR Transceiver	JD094B
HP X130 10G SFP+ LC ER 40km Transceiver	JG234A
HP X240 10G SFP+ SFP+ 0.65m DAC Cable	JD095C#B01
HP X240 10G SFP+ SFP+ 1.2m DAC Cable	JD096C#B01
HP X240 10G SFP+ SFP+ 3m DAC Cable	JD097C#B01
HP X240 10G SFP+ SFP+ 5m DAC Cable	JG081C#B01
HP X240 10G SFP+ 7m DAC Cable	JC784C#B01

##### FC SFP+ Transceivers

HP 16Gb FC/10GbE 100m SFP+ XCVR	H6Z42A
HP 16G FC/10G Eth SFP+ 4-XCVR Bndl	JC908A
HP 8Gb Short Wave FC SFP+ 1 Pack	AJ718A
HP 8Gb LW 10km FC SFP+ 1 Pk Transceiver	AW584A

##### QSFP+ Transceivers

HP X140 40G QSFP+ LC LR4 SM XCVR	JG661A
HP X140 40G QSFP+ MPO SR4 XCVR	JG325B
HP X140 40G QSFP+ CSR4 300m XCVR	JG709A
HP X240 40G QSFP+ QSFP+ 1m DAC Cable	JG326A#B01
HP X240 40G QSFP+ QSFP+ 3m DAC Cable	JG327A#B01
HP X240 40G QSFP+ QSFP+ 5m DAC Cable	JG328A#B01
HP X240 QSFP+ 4x10G SFP+ 1m DAC Cable	JG329A#B01
HP X240 QSFP+ 4x10G SFP+ 3m DAC Cable	JG330A#B01
HP X240 QSFP+ 4x10G SFP+ 5m DAC Cable	JG331A#B01

#### Cables

##### AOC Cables

HP BLc 40G QSFP+ QSFP+ 7m AOC Cable	720205-B21
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### Configuration

HP BLc 40G QSFP+ QSFP+ 15m AOC Cable	720211-B21
HP BLc 40G QSFP+ QSFP+ 10m AOC Cable	720208-B21

### Multi-Mode Cables

HP .5m Multi-mode OM3 LC/LC FC Cable	AJ833A
HP 1m Multi-mode OM3 LC/LC FC Cable	AJ834A
HP 2 m Multimode OM3 LC/LC FC Cable	AJ835A
HP 5 m Multimode OM3 LC/LC FC Cable	AJ836A
HP 15 m Multimode OM3 LC/LC FC Cable	AJ837A
HP 30 m Multimode OM3 LC/LC FC Cable	AJ838A
HP 50 m Multimode OM3 LC/LC FC Cable	AJ839A
HP Premier Flex LC/LC OM4 2f 1m Cbl	QK732A
HP Premier Flex LC/LC OM4 2f 2m Cbl	QK733A
HP Premier Flex LC/LC OM4 2f 5m Cbl	QK734A
HP Premier Flex LC/LC OM4 2f 15m Cbl	QK735A
HP Premier Flex LC/LC OM4 2f 30m Cbl	QK736A
HP Premier Flex LC/LC OM4 2f 50m Cbl	QK737A

### MPO Cables

HP MPO to 4 x LC 5m Cable	K2Q46A
HP MPO to 4 x LC 15m Cable	K2Q47A
HP Premier Flex MPO/MPO OM4 8f 10m Cbl	QK729A
HP Premier Flex MPO/MPO OM4 12f 50m Cbl	QK731A
HP Premier Flex MPO/MPO OM4 12f 100m Cbl	H6Z30A

### Internal Power Supplies

(JG726A, JH178A, JG727A, JH187A) System (std 0 // max 2) User Selection (min 1 // max 2) per switch

(JH179A, JH188A) System (std 0 // max 4) User Selection (min 1 // max 4) per switch

HP 58x0AF 650W AC Power Supply	JC680A
<ul style="list-style-type: none"> <li>includes 1 x c13, 300w</li> </ul>	See Configuration Note:1, 2
PDU Cable NA/MX/TW/JP	JC680A#B2B
<ul style="list-style-type: none"> <li>C15 PDU Jumper Cord (NA/MX/TW/JP)</li> </ul>	
PDU Cable ROW	JC680A#B2C
<ul style="list-style-type: none"> <li>C15 PDU Jumper Cord (ROW)</li> </ul>	
HP 58x0AF 650W DC Power Supply	JC681A
	See Configuration Note:1

### Configuration Rules:

**Note 1** If 2 power supplies are selected they must be the same Sku number.

### Configuration

**Note 2** Localization (Wall Power Cord) required on orders without #B2B, #B2C (PDU Power Cord) . (See Localization Menu)  
REMARK: When Switches/Routers are Factory Racked, Then #B2B, or #B2C should be the Defaulted Power Cable option on the Switches/Routers.

**Remarks:**

Drop down under power supply should offer the following options and results:  
Switch/Router to PDU Power Cord - #B2B in NA, Mexico, Taiwan, and Japan or #B2C ROW. (Watson Default B2B or B2C for Rack Level CTO)  
Switch/Router/Power Supply to Wall Power Cord - Localized Option (Watson Default for BTO and Box Level CTO)

### Switch Options

#### Fan Trays

System (std 0 // max 2) User Selection (min 2 // max 2) per switch

HP X711 Frt(prt)-Bck(pwr) HV Fan Tray	JG552A See Configuration Note:1, 2
HP X712 Bck(pwr)-Frt(prt) HV Fan Tray	JG553A See Configuration Note:1, 2
HP 5930-4SlT Back-to-Front Fan Tray	JH185A See Configuration Note:1, 3
HP 5930-4SlT Front-to-Back Fan Tray	JH186A See Configuration Note:1, 3

#### Configuration Rules:

- Note 1** Fan Trays cannot be mixed in the same switch enclosure
- Note 2** This power supply is only supported on JG726A, JH178A, JG727A and JH187A.
- Note 3** This power supply is only supported on JH179A and JH188A.

**Remarks:**

**Watson Blue Text:**  
If there is any empty space below the switch in a rack when using Back to Front Fan Trays, JG553A, the rack will receive an Air Plenum kit that takes up 1U of additional space in the rack. The Air Plenum kit is not required on fully configured racks. This only applies for CTO Rack Level Integration. The Air Plenum Kit is a non-saleable SKU, and is brought in automatically for CTO Factory Rack Level Integration.

### Configuration

#### Opacity Shield Kit

System (std 0 // max 1) User Selection (min 0 // max 1)

HP FF 5930-32QSFP+ Opcty Shld Kit

- Supported on JG727A

JH062A#B01  
See Configuration  
Note:1

HP FF 5930-2Slot+2QSFP+ Opcty Shld Kit

- Supported on JH187A

JH189A#B01  
See Configuration  
Note:1

HP FF 5930-4Slot Opcty Shld Kit

- Supported on JH188A

JH190A#B01  
See Configuration  
Note:1

#### Configuration Rules:

Note 1 If selected with a CTO Switch Solution, Quantity 1 of JG585A#B01 must also be ordered.

#### Tamper Evidence Labels

System (std 0 // max 1) User Selection (min 0 // max 1)

HP 12mm x 60mm Tmpr-Evidence (30) Lbl

- Supported on JG727A, JH187A, JH188A

JG585A#B01  
See Configuration  
Note:1

#### Configuration Rules:

Note 1 If selected with a CTO Switch Solution, Quantity 1 of JH062A#B01, JH189A#B01 or JH190A#B01 must also be ordered.

#### Remarks:

Each JH062A, JH189A or JH190A would use 1 of JG585A.

### Technical Specifications

#### HP FlexFabric 5930-32QSFP+ Switch (JG726A)

<b>I/O ports and slots</b>	32 QSFP+ 40GbE ports		
<b>Additional ports and slots</b>	1 RJ-45 serial console port		
	1 RJ-45 out-of-band management port		
	1 USB 2.0		
<b>Power supplies</b>	2 power supply slots 1 minimum power supply required (ordered separately)		
<b>Fan tray</b>	2 fan tray slots		
	The customer must order fan trays, as fan trays are not included with the switch. This system requires two same-direction airflow fan trays to function properly.		
	The system should not be operated with only one fan tray for more than 24 hours. The system should not be operated without a fan tray for more than two minutes.		
	The system should not be operated outside of the temperature range of 32°F (0°C) to 113°F (45°C). Failure to comply with these operating requirements may void the product warranty		
<b>Physical characteristics</b>	<b>Dimensions</b>	17.32(w) x 25.98(d) x 1.72(h) in (44.00 x 66.0 x 4.37 cm)	
	<b>Weight</b>	28.66 lb (13 kg) shipping weight	
	<b>Full configuration weight</b>	28.66 lb (13 kg)	
	<b>Memory and processor</b> 1 GB flash; Packet buffer size: 12.2 MB, 4 GB SDRAM		
<b>Performance</b>	<b>10 Gbps Latency</b>	< 1µs (64-byte packets)	
	<b>Throughput</b>	up to 1429 Mpps	
	<b>Routing/Switching capacity</b>	2560 Gbps	
	<b>Routing table size</b>	120000 entries (IPv4), 60000 entries (IPv6)	
	<b>MAC address table size</b>	288000 entries	
	<b>Environment</b>	<b>Operating temperature</b>	32°F to 113°F (0°C to 45°C)
		<b>Operating relative humidity</b>	10% to 95%, noncondensing
<b>Acoustic</b>		Low-speed fan: 59.8 dB, High-speed fan: 74.4 dB	
<b>Electrical characteristics</b>	<b>Frequency</b>	50/60 Hz	
	<b>Maximum heat dissipation</b>	597/1361 BTU/hr (629.83/1435.86 kJ/hr)	
	<b>Voltage</b>	90 - 264 VAC, rated	
		-40 to -75 VDC, rated (depending on power supply chosen)	
	<b>Maximum power rating</b>	399 W	
	<b>Idle power</b>	175 W	
	<b>Notes</b>	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.	
<b>Safety</b>	UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1; Anatel; ULAR; GOST; EN 60950-1/A11; FDA 21 CFR Subchapter J; NOM; ROHS Compliance		
<b>Emissions</b>	VCCI Class A; EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; AS/NZS CISPR 22 Class A; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A		
<b>Immunity</b>	<b>Generic</b>	ETSI EN 300 386 V1.3.3	
	<b>EN</b>	EN 55024:1998+ A1:2001 + A2:2003	

### Technical Specifications

	<b>ESD</b>	EN 61000-4-2; IEC 61000-4-2
	<b>Radiated</b>	EN 61000-4-3; IEC 61000-4-3
	<b>EFT/Burst</b>	EN 61000-4-4; IEC 61000-4-4
	<b>Surge</b>	EN 61000-4-5; IEC 61000-4-5
	<b>Conducted</b>	EN 61000-4-6; IEC 61000-4-6
	<b>Power frequency magnetic field</b>	IEC 61000-4-8; EN 61000-4-8
	<b>Voltage dips and interruptions</b>	EN 61000-4-11; IEC 61000-4-11
	<b>Harmonics</b>	EN 61000-3-2; IEC 61000-3-2
	<b>Flicker</b>	EN 61000-3-3; IEC 61000-3-3
<b>Management</b>	IMC - Intelligent Management Center; command-line interface; out-of-band management; SNMP Manager; Telnet; FTP	
<b>Notes</b>	The customer must order a power supply, as the device does not come with one. At least one JC680A or JC681A is required.	
<b>Services</b>	Refer to the HP website at: <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	

#### HP FlexFabric 5930-4Slot Switch (JH179A)

<b>I/O ports and slots</b>	4 module slots	
<b>Additional ports and slots</b>	1 RJ-45 serial console port 1 RJ-45 out-of-band management port 1 USB 2.0	
<b>Power supplies</b>	4 power supply slots 2 minimum power supplies required (ordered separately)	
<b>Fan tray</b>	2 fan tray slots The customer must order fan trays, as fan trays are not included with the switch. This system requires two same-direction airflow fan trays to function properly. The system should not be operated with only one fan tray for more than 24 hours. The system should not be operated without a fan tray for more than two minutes. The system should not be operated outside of the temperature range of 32°F (0°C) to 113°F (45°C). Failure to comply with these operating requirements may void the product warranty.	
<b>Physical characteristics</b>	<b>Dimensions</b>	17.32(w) x 25.98(d) x 3.47(h) in (44.00 x 66.0 x 8.81 cm) (2U height)
	<b>Weight</b>	66.14 lb (30 kg) shipping weight
	<b>Full configuration weight</b>	59.52 lb (27 kg)
<b>Memory and processor</b>	1 GB flash; Packet buffer size: 12.2 MB, 4 GB SDRAM	
<b>Performance</b>	<b>10 Gbps Latency</b>	< 1 μs (64-byte packets)
	<b>Throughput</b>	up to 1429 Mpps
	<b>Routing/Switching capacity</b>	2560 Gbps
	<b>Routing table size</b>	120000 entries (IPv4), 60000 entries (IPv6)
	<b>MAC address table size</b>	288000 entries
<b>Reliability</b>	<b>MTBF (years)</b>	35.8
	<b>MTTR (hours)</b>	1
<b>Environment</b>	<b>Operating temperature</b>	32°F to 113°F (0°C to 45°C)
	<b>Operating relative humidity</b>	10% to 90%, noncondensing
	<b>Acoustic</b>	Low-speed fan: 59.8 dB, High-speed fan: 74.4 dB



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<b>Electrical characteristics</b>	<b>Frequency</b>	50/60 Hz
	<b>Maximum heat dissipation</b>	474/3030 BTU/hr (500.07/3196.65 kJ/hr)
	<b>Voltage</b>	90 - 264 VAC, rated -40 to -75 VDC, rated (depending on power supply chosen)
	<b>Maximum power rating</b>	888 W
	<b>Idle power</b>	139 W
	<b>Notes</b>	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.
	<b>Safety</b>	UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1; Anatel; ULAR; GOST; EN 60950-1/A11; FDA 21 CFR Subchapter J; NOM; ROHS Compliance
<b>Emissions</b>	VCCI Class A; EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; AS/NZS CISPR 22 Class A; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A	
<b>Immunity</b>	<b>Generic</b>	ETSI EN 300 386 V1.3.3
	<b>EN</b>	EN 55024:1998+ A1:2001 + A2:2003
	<b>ESD</b>	EN 61000-4-2; IEC 61000-4-2
	<b>Radiated</b>	EN 61000-4-3; IEC 61000-4-3
	<b>EFT/Burst</b>	EN 61000-4-4; IEC 61000-4-4
	<b>Surge</b>	EN 61000-4-5; IEC 61000-4-5
	<b>Conducted</b>	EN 61000-4-6; IEC 61000-4-6
	<b>Power frequency magnetic field</b>	IEC 61000-4-8; EN 61000-4-8
	<b>Voltage dips and interruptions</b>	EN 61000-4-11; IEC 61000-4-11
	<b>Harmonics</b>	EN 61000-3-2; IEC 61000-3-2
	<b>Flicker</b>	EN 61000-3-3; IEC 61000-3-3
<b>Management</b>	IMC - Intelligent Management Center; command-line interface; out-of-band management; SNMP Manager; Telnet; FTP	
<b>Services</b>	Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	

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#### HP FlexFabric 5930-2Slot+2QSFP+ Switch (JH178A)

<b>I/O ports and slots</b>	2 module slots 2 QSFP+ 40GbE ports
<b>Additional ports and slots</b>	1 RJ-45 serial console port 1 RJ-45 out-of-band management port 1 USB 2.0
<b>Power supplies</b>	2 power supply slots 1 minimum power supply required (ordered separately)
<b>Fan tray</b>	2 fan tray slots The customer must order fan trays, as fan trays are not included with the switch. This system requires

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two same-direction airflow fan trays to function properly. The system should not be operated with only one fan tray for more than 24 hours. The system should not be operated without a fan tray for more than two minutes. The system should not be operated outside of the temperature range of 32°F (0°C) to 113°F (45°C). Failure to comply with these operating requirements may void the product warranty.

<b>Physical characteristics</b>	<b>Dimensions</b>	17.32(w) x 25.98(d) x 1.74(h) in (44.00 x 66.0 x 4.42 cm)
	<b>Weight</b>	(1U height)
	<b>Full configuration weight</b>	39.68 lb (18 kg) shipping weight
<b>Memory and processor</b>	1 GB flash; Packet buffer size: 12.2 MB, 4 GB SDRAM	
<b>Performance</b>	<b>10 Gbps Latency</b>	< 1 μs (64-byte packets)
	<b>Throughput</b>	up to 1071 Mpps
	<b>Routing/Switching capacity</b>	1440 Gbps
	<b>Routing table size</b>	120000 entries (IPv4), 60000 entries (IPv6)
	<b>MAC address table size</b>	288000 entries
<b>Reliability</b>	<b>MTBF (years)</b>	47.2
	<b>MTTR (hours)</b>	1
<b>Environment</b>	<b>Operating temperature</b>	32°F to 113°F (0°C to 45°C)
	<b>Operating relative humidity</b>	10% to 90%, noncondensing
	<b>Acoustic</b>	Low-speed fan: 59.8 dB, High-speed fan: 74.4 dB
<b>Electrical characteristics</b>	<b>Frequency</b>	50/60 Hz
	<b>Maximum heat dissipation</b>	358/1733 BTU/hr (377.69/1828.31 kJ/hr)
	<b>Voltage</b>	90 - 264 VAC, rated -40 to -75 VDC, rated (depending on power supply chosen)
	<b>Maximum power rating</b>	508 W
	<b>Idle power</b>	105 W
	<b>Notes</b>	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.
	<b>Safety</b>	UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1; Anatel; ULAR; GOST; EN 60950-1/A11; FDA 21 CFR Subchapter J; NOM; ROHS Compliance
<b>Emissions</b>	VCCI Class A; EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; AS/NZS CISPR 22 Class A; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A	
<b>Immunity</b>	<b>Generic</b>	ETSI EN 300 386 V1.3.3
	<b>EN</b>	EN 55024:1998+ A1:2001 + A2:2003
	<b>ESD</b>	EN 61000-4-2; IEC 61000-4-2
	<b>Radiated</b>	EN 61000-4-3; IEC 61000-4-3
	<b>EFT/Burst</b>	EN 61000-4-4; IEC 61000-4-4
	<b>Surge</b>	EN 61000-4-5; IEC 61000-4-5
	<b>Conducted</b>	EN 61000-4-6; IEC 61000-4-6
	<b>Power frequency magnetic field</b>	IEC 61000-4-8; EN 61000-4-8

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**Voltage dips and interruptions** EN 61000-4-11; IEC 61000-4-11

**Harmonics** EN 61000-3-2, IEC 61000-3-2

**Flicker** EN 61000-3-3, IEC 61000-3-3

**Management** IMC - Intelligent Management Center; command-line interface; out-of-band management; SNMP Manager; Telnet; FTP

**Notes** The customer must order a power supply, as the device does not come with one. At least one JC680A or JC681A is required.

**Services** Refer to the HP website at [www.hp.com/networking/services](http://www.hp.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 HP sales office.

**Standards and protocols**  
(applies to all products in series)

#### BGP

RFC 1163 Border Gateway Protocol (BGP)  
RFC 1771 BGPv4  
RFC 1997 BGP Communities Attribute  
RFC 2918 Route Refresh Capability  
RFC 3392 Capabilities Advertisement with BGP-4  
RFC 4271 A Border Gateway Protocol 4 (BGP-4)  
RFC 4360 BGP Extended Communities Attribute  
RFC 4456 BGP Route Reflection: An Alternative to Full Mesh Internal BGP (IBGP)  
RFC 4760 Multiprotocol Extensions for BGP-4

#### Device management

RFC 1157 SNMPv1/v2c  
RFC 1305 NTPv3  
RFC 1591 DNS (client)  
RFC 1902 (SNMPv2)  
RFC 1908 (SNMP v1/2 Coexistence)  
RFC 2573 (SNMPv3 Applications)  
RFC 2576 (Coexistence between SNMP V1, V2, V3)  
Multiple Configuration Files  
Multiple Software Images  
SSHv1/SSHv2 Secure Shell  
TACACS/TACACS+

#### General protocols

IEEE 802.1D MAC Bridges  
IEEE 802.1p Priority  
IEEE 802.1Q VLANs  
IEEE 802.1s Multiple Spanning Trees  
IEEE 802.1w Rapid Reconfiguration of Spanning Tree  
IEEE 802.3ad Link Aggregation Control Protocol (LACP)  
IEEE 802.3ae 10-Gigabit Ethernet  
IEEE 802.3ag Ethernet OAM  
IEEE 802.3ah Ethernet in First Mile over Point to Point Fiber - EFMF  
IEEE 802.3x Flow Control  
RFC 768 UDP  
RFC 783 TFTP Protocol (revision 2)  
RFC 791 IP  
RFC 792 ICMP

#### IPv6

RFC 2080 RIPng for IPv6  
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  
RFC 2545 Use of MP-BGP-4 for IPv6  
RFC 2563 ICMPv6  
RFC 2711 IPv6 Router Alert Option  
RFC 2740 OSPFv3 for IPv6  
RFC 2767 Dual stacks IPv4 & IPv6  
RFC 3315 DHCPv6 (client and relay)  
RFC 4291 IP Version 6 Addressing Architecture  
RFC 4862 IPv6 Stateless Address Auto-configuration  
RFC 5095 Deprecation of Type 0 Routing Headers in IPv6

#### MIBs

RFC 1213 MIB II  
RFC 1907 SNMPv2 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 2737 Entity MIB (Version 2)  
RFC 3414 SNMP-User based-SM MIB  
RFC 3415 SNMP-View based-ACM MIB  
LLDP-EXT-DOT1-MIB  
LLDP-EXT-DOT3-MIB  
LLDP-MIB

#### Network management

RFC 3164 BSD syslog Protocol

#### OSPF

RFC 1587 OSPF NSSA

### Technical Specifications

RFC 793 TCP	RFC 2328 OSPFv2
RFC 826 ARP	RFC 3101 OSPF NSSA
RFC 854 TELNET	RFC 3137 OSPF Stub Router Advertisement
RFC 856 TELNET	RFC 3623 Graceful OSPF Restart
RFC 868 Time Protocol	RFC 4577 OSPF as the Provider/Customer Edge Protocol for BGP/MPLS IP Virtual Private Networks (VPNs)
RFC 896 Congestion Control in IP/TCP Internetworks	RFC 4811 OSPF Out-of-Band LSDB Resynchronization
RFC 950 Internet Standard Subnetting Procedure	RFC 4812 OSPF Restart Signaling
RFC 1027 Proxy ARP	RFC 4813 OSPF Link-Local Signaling
RFC 1058 RIPv1	
RFC 1091 Telnet Terminal-Type Option	<b>QoS/CoS</b>
RFC 1141 Incremental updating of the Internet checksum	IEEE 802.1p (CoS)
RFC 1142 OSI IS-IS Intra-domain Routing Protocol	RFC 2475 DiffServ Architecture
RFC 1191 Path MTU discovery	RFC 2597 DiffServ Assured Forwarding (AF)
RFC 1213 Management Information Base for Network Management of TCP/IP-based internets	RFC 3247 Supplemental Information for the New Definition of the EF PHB (Expedited Forwarding Per-Hop Behavior)
RFC 1253 (OSPF v2)	RFC 3260 New Terminology and Clarifications for DiffServ
RFC 1531 Dynamic Host Configuration Protocol	
RFC 1533 DHCP Options and BOOTP Vendor Extensions	<b>Security</b>
RFC 1534 DHCP/BOOTP Interoperation	Access Control Lists (ACLs)
RFC 1541 DHCP	SSHv2 Secure Shell
RFC 1591 DNS (client only)	
RFC 1624 Incremental Internet Checksum	
RFC 1723 RIP v2	
RFC 1812 IPv4 Routing	
RFC 2030 Simple Network Time Protocol (SNTP) v4	
RFC 2131 DHCP	
RFC 2236 IGMP Snooping	
RFC 2338 VRRP	
RFC 2453 RIPv2	
RFC 2581 TCP Congestion Control	
RFC 2644 Directed Broadcast Control	
RFC 2767 Dual Stacks IPv4 & IPv6	
RFC 3046 DHCP Relay Agent Information Option	
RFC 3768 Virtual Router Redundancy Protocol (VRRP)	
RFC 4250 The Secure Shell (SSH) Protocol Assigned Numbers	
RFC 4251 The Secure Shell (SSH) Protocol Architecture	
RFC 4252 The Secure Shell (SSH) Authentication Protocol	
RFC 4253 The Secure Shell (SSH) Transport Layer Protocol	
RFC 4254 The Secure Shell (SSH) Connection Protocol	
RFC 4364 BGP/MPLS IP Virtual Private Networks (VPNs)	
RFC 4419 Diffie-Hellman Group Exchange for the Secure Shell (SSH) Transport Layer Protocol	
RFC 4594 Configuration Guidelines for DiffServ Service Classes	
RFC 4941 Privacy Extensions for Stateless Address	

### Technical Specifications

#### Autoconfiguration in IPv6

### Accessories

#### HP FlexFabric 5930 Switch Series accessories

##### Transceivers

HP X240 40G QSFP+ QSFP+ 3m Direct Attach Copper Cable	JG327A
HP X240 40G QSFP+ QSFP+ 5m Direct Attach Copper Cable	JG328A
HP X240 40G QSFP+ to 4x10G SFP+ 1m Direct Attach Copper Splitter Cable	JG329A
HP X240 40G QSFP+ to 4x10G SFP+ 3m Direct Attach Copper Splitter Cable	JG330A
HP X240 40G QSFP+ to 4x10G SFP+ 5m Direct Attach Copper Splitter Cable	JG331A
HP X140 40G QSFP+ LC LR4 SM 10km 1310nm Transceiver	JG661A
HP X140 40G QSFP+ MPO SR4 Transceiver	JG325B
HP X140 40G QSFP+ MPO MM 850nm CSR4 300m Transceiver	JG709A
HP X240 10G SFP+ SFP+ 7m Direct Attach Copper Cable	JC784C
HP X140 40G CFP LC LR4 10km SM Transceiver	JC857A
HP X125 1G SFP LC LH40 1310nm Transceiver	JD061A
HP X120 1G SFP LC LH40 1550nm Transceiver	JD062A
HP X125 1G SFP LC LH70 Transceiver	JD063B
HP X120 1G SFP RJ45 T Transceiver	JD089B
HP X130 10G SFP+ LC SR Transceiver	JD092B
HP X130 10G SFP+ LC LRM Transceiver	JD093B
HP X130 10G SFP+ LC LR Transceiver	JD094B
HP X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable	JD095C
HP X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JD096C
HP X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD097C
HP X120 1G SFP LC LH100 Transceiver	JD103A
HP X130 10G XFP LC ZR Single Mode 80km 1550nm Transceiver	JD107A
HP X130 10G XFP LC LR Single Mode 10km 1310nm Transceiver	JD108B
HP X120 1G SFP LC SX Transceiver	JD118B
HP X120 1G SFP LC LX Transceiver	JD119B
HP X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable	JG081C
HP X130 10G SFP+ LC ER 40km Transceiver	JG234A
HP X130 10G SFP+ LC ER 40km Transceiver	JG234A
HP X130 10G SFP+ LC LH 80km Transceiver	JG915A
HP X240 40G QSFP+ QSFP+ 1m Direct Attach Copper Cable	JG326A

##### Power Supply

HP A58xOAF 650W AC Power Supply	JC680A
HP 58xOAF 650W DC Power Supply	JC681A

##### HP FlexFabric 5930-32QSFP+ Switch\_PL (JG726A)

HP X711 Front (port side) to Back (power side) Airflow High Volume Fan Tray	JG552A
HP X712 Back (power side) to Front (port side) Airflow High Volume Fan Tray	JG553A

##### HP FlexFabric 5930-4Slot Switch (JH179A)

HP 5930 24-port SFP+ and 2-port QSFP+ Module	JH180A
HP 5930 24-port SFP+ and 2-port QSFP+ with MACsec Module	JH181A
HP 5930 24-port 10GBase-T and 2-port QSFP+ with MACsec Module	JH182A
HP 5930 8-port QSFP+ Module	JH183A
HP 5930 24-port Converged Port and 2-port QSFP+ Module	JH184A

### Accessories

HP 5930-4Slot Back (Power Side) to Front (Port Side) Airflow Fan Tray	JH185A
HP 5930-4Slot Front (Port Side) to Back (Power Side) Airflow Fan Tray	JH186A

#### **HP FlexFabric 5930-2Slot+2QSFP+ Switch (JH178A)**

HP 5930 24-port SFP+ and 2-port QSFP+ Module	JH180A
HP 5930 24-port SFP+ and 2-port QSFP+ with MACsec Module	JH181A
HP 5930 24-port 10GBase-T and 2-port QSFP+ with MACsec Module	JH182A
HP 5930 8-port QSFP+ Module	JH183A
HP 5930 24-port Converged Port and 2-port QSFP+ Module	JH184A
HP X711 Front (port side) to Back (power side) Airflow High Volume Fan Tray	JG552A
HP X712 Back (power side) to Front (port side) Airflow High Volume Fan Tray	JG553A

### Summary of Changes

Date	Version History	Action	Description of Change:
May 5, 2015	From Version 9 to 10	Changed	Minor spelling change made on the overview section, Configuration menu updated
April 24, 2015	From Version 8 to 9	Added	Added two new models: <ul style="list-style-type: none"> <li>• JH179A</li> <li>• JH178A</li> </ul>
		Changed	Updated Overview, Configuration, Technical Specifications and Accessories sections
December 12, 2014	From Version 7 to 8	Removed	Deleted SKU JG325A
July 3, 2014	From Version 6 to 7	Changed	Configuration menu updated.
April 15, 2014	From Version 4 to 5	Changed	Transceivers were revised.
March 19, 2013	From Version 3 to 4	Changed	Transceivers were revised in Configuration.
December 17, 2013	From Version 2 to 3	Changed	Switch Enclosure Options were revised and HP X140 40G QSFP+ LC LR4 SM XCVR was added to Configuration.
December 11, 2013	From Version 1 to 2	Changed	Updated the power specifications and accessories.



### Summary of Changes

To learn more, visit: [www.hp.com/networking](http://www.hp.com/networking)

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