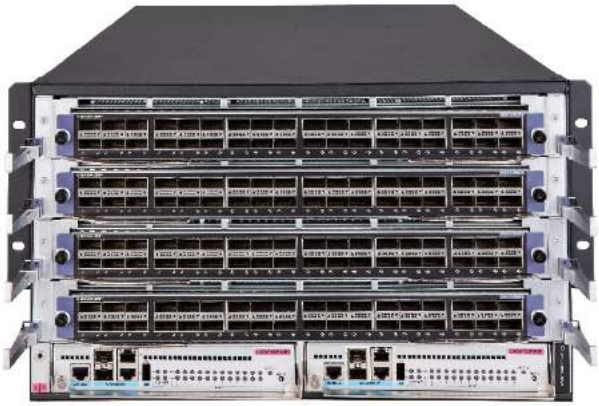
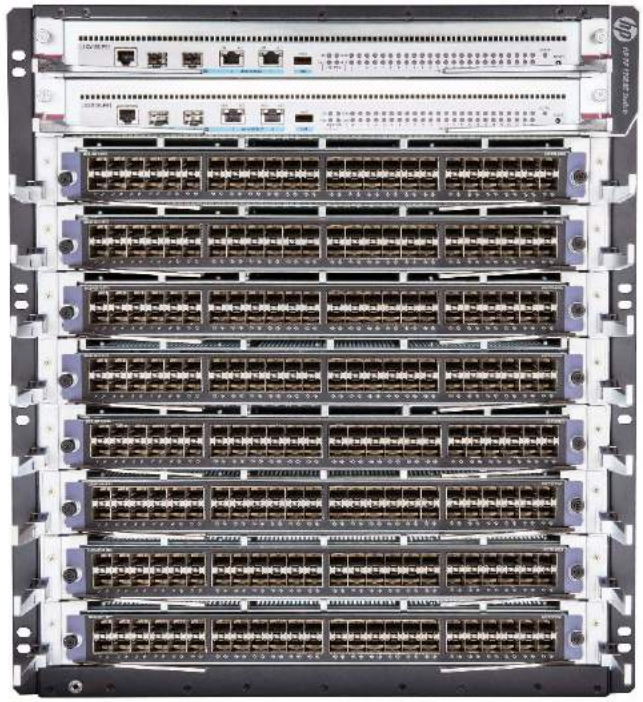
Overview

HPE FlexFabric 12900E Switch Series





Models

HPE FlexFabric 12916E Switch Chassis	JH103A
HPE FlexFabric 12908E Switch Chassis	JH255A
HPE FlexFabric 12904E Switch Chassis	JH262A
HPE FlexFabric 12902E Switch Chassis	JH345A
HPE FlexFabric 12901E Switch Chassis	JH951A
HPE FlexFabric 12910 Switch AC Chassis	JG619A

Key features

- Nonblocking, lossless Clos architecture
- VxLAN, IRF, and TRILL support for virtualized and cloud deployments
- High GbE, 10GbE, 40GbE, and 100GbE density across 46 Tb/s switch fabric
- Enhanced modularity with control and data plane separation
- SDN-enabled with OpenFlow1.3 support

Product overview

The HPE FlexFabric 12900E Switch Series is a next-generation modular data center core switch designed to support virtualized data centers and the evolving needs of private and public cloud deployments.

Overview

The FlexFabric 12900E switch delivers unprecedented levels of performance, buffering, scale, and availability with high-density GbE, 10GbE, 40GbE and 100GbE. The HPE FlexFabric 12900 Switch Series includes 16-, 10-, 8- 4-, 2-, and 1-slot chassis.

Software-defined networking (SDN) enabled with OpenFlow 1.3, the switch supports full Layer 2 and 3 features, including advanced features such as Virtual Extensible LAN (VxLAN), TRansparent Interconnection of Lots of Links (TRILL) and Intelligent Resilient Fabric (IRF), which provide the ability to build large, resilient switching fabrics. The HPE FlexFabric 12900 Switch Series also supports fully redundant and hot-swappable components to complement its other enterprise-class capabilities.

Features and benefits

Product architecture

- **Modern scalable system architecture**
  provides nonblocking, lossless Clos architecture with VOQs and large buffers with the flexibility and scalability for future growth
- **Distributed architecture with separation of data and control planes**
  delivers enhanced fault tolerance and facilitates continuous operation and zero service disruption during planned or unplanned control-plane events
- **Advanced Comware modular operating system**
  brings native high-stability, independent process monitoring, and restart through the modular design and multiple processes of Hewlett Packard Enterprise (HPE) Comware v7 software; supports enhanced serviceability functions
- **In-Service Software Upgrade (ISSU)**
  provides an IRF-based upgrade for seamless maintenance with minimal disruption
- **Multitenant Device Context (MDC)**
  virtualizes a physical switch into multiple logical devices, with each logical switch having its own processes, configuration, and administration

Performance

- **High-performance fully distributed architecture**
  delivers up to 184 Tbps (bi-directional) switching capacity and 92.16 Bpps throughput with non-blocking wire speed performance
- **High-density 1, 10, 40 and 100GbE interface connectivity**
  offers up to 16 interface module slots to scale up to 768 1/10GbE, 576 40GbE, 128 100GbE ports or a combination
- **Low latency and consistent performance**
  Under 5 microsecond latency (64-byte packets) and consistent performance for broad range of applications typical of a data center including mixed traffic loads of real-time, multicast, and storage traffic
- **Distributed scalable fabric architecture**
  offers up to six fabric modules to deliver more than 2 Tb per slot bandwidth

Data center optimized

- **Virtual Extensible LAN (VxLAN)**
  provides wire-rate support for seamless Layer 2 connectivity across Layer 3 networks enabling virtual machine mobility and cloud deployments
- **Scalable Layer 2 fabrics**
  builds flexible, resilient, and scalable Layer 2 fabrics with TRILL and Hewlett Packard Enterprise IRF
- **Hewlett Packard Enterprise Ethernet Virtual Interconnect (EVI)**
  is an Hewlett Packard Enterprise Virtual Application Network innovation that provides a Layer 2 extension across the data center to simplify the interconnectivity of geographically disperse data centers
- **Edge Virtual Bridging (EVB) with Virtual Ethernet Port Aggregator (VEPA)**
  provides connectivity into the virtualization-ready data center environment
- **Data Center Bridging (DCB) protocols**
  provides support for IEEE 802.1Qaz Data Center Bridging Exchange (DCBX), Enhanced Transmission Selection (ETS), and IEEE 802.1Qbb Priority Flow Control (PFC) for converged fabrics

Overview

- **Fibre Channel over Ethernet (FCoE) features**
  deliver support for FCoE, including expansion, fabric, trunk VF and N ports, and aggregation of E-port and N-port virtualization
- **Front-to-back airflow chassis available**
  accommodates deployment in data centers utilizing hot-cold aisles

Resiliency and high availability

- **Intelligent Resilient Fabric (IRF)**
  creates virtual resilient switching fabrics, where two or more switches perform as a single L2 switch and L3 router; switches do not have to be co-located 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 the need for complex protocols like Spanning Tree Protocol, Equal-Cost Multipath (ECMP), or VRRP, thereby simplifying network operation
- **Redundant/load-sharing fabrics, management, fan assemblies, and power supplies**
  increase total performance and power availability while providing hitless, stateful failover
- **Hot-swappable modules**
  allows replacement of modules without any impact on other modules
- **Graceful restart**
  allows routers to indicate to others their capability to maintain a routing table during a temporary shutdown, which significantly reduces convergence times upon recovery; supports OSPF, BGP, and IS-IS
- **Virtual Router Redundancy Protocol (VRRP)**
  allows groups of two routers to back each other up dynamically to create highly available routed environments
- **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
- **Hitless patch upgrades**
  allows patches and new service features to be installed without restarting the equipment, increasing network uptime and facilitating maintenance
- **IEEE 802.3ad Link Aggregation Control Protocol (LACP)**
  supports up to 1024 trunk groups and up to 16 members per trunk; supports static or dynamic groups and a user-selectable hashing algorithm
- **Passive design system**
  delivers increased system reliability as the backplane has no active components
- **Ultrafast protocol convergence (subsecond) 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

Layer 2 switching

- **VLAN**
  supports up to 4,094 port-based or IEEE 802.1Q-based VLANs
- **Bridge Protocol Data Unit (BPDU) tunneling**
  transmits Spanning Tree Protocol BPDUs transparently, allowing correct tree calculations across service providers, WANs, or MANs
- **Port mirroring**
  duplicates port traffic (ingress and egress) to a local or remote monitoring port; supports four mirroring groups, with an unlimited number of ports per group
- **Multiple VLAN Registration Protocol (MVRP)**
  helps to maintain VLAN configuration dynamically based on current network configurations
- **Port mirroring**
  duplicates port traffic (ingress and egress) to a local or remote monitoring port; supports four mirroring groups, with an unlimited number of ports per group
- **Port isolation**
  increases security by isolating ports within a VLAN while still allowing them to communicate with other VLANs

Overview

- **Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) protocol snooping**
  controls and manages the flooding of multicast packets in a Layer 2 network
- **Spanning Tree Protocol (STP)**
  supports standard IEEE 802.1D STP, IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) for faster convergence, and IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
- **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-speedcampus or metro network

Layer 3 routing

- **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
- **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)
- **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 network
- **Multiprotocol Label Switching (MPLS)**
  uses BGP to advertise routes across Label Switched Paths (LSPs), but uses simple labels to forward packets from any Layer 2 or Layer 3 protocol, which reduces complexity and increases performance; supports graceful restart for reduced failure impact; supports LSP tunneling and multilevel stacks
- **Dual IP stack**
  maintains separate stacks for IPv4 and IPv6 to ease the transition from an IPv4-only network to an IPv6-only network desig
- **Equal-Cost Multipath (ECMP)**
  enables multiple equal-cost links in a routing environment to increase link redundancy and scale bandwidt
- **Policy-based routing**
  makes routing decisions based on policies set by the network administrator
- **Static IPv4 routing**
  provides simple manually configured IPv4 routing
- **Routing Information Protocol (RIP)**
  uses a distance vector algorithm with UDP packets for route determination; supports RIPv1 and RIPv2 routing; includes loop protection
- **IP performance optimization**
  provides a set of tools to improve the performance of IPv4 networks; includes directed broadcasts, customization of TCP parameters, support of ICNP error packets, and extensive display capabilities
- **Unicast Reverse Path Forwarding (uRPF)**
  limits erroneous or malicious traffic in accordance with RFC 3074
- **Static IPv6 routing**
  provides simple manually configured IPv6 routing
- **Routing Information Protocol next generation (RIPng)**
  extends RIPv2 to support IPv6 addressing
- **OSPFv3**
  provides OSPF support for IPv
- **IS-IS for IPv6**
  extends IS-IS to support IPv6 addressing
- **BGP+**
  extends BGP-4 to support Multiprotocol BGP (MBGP), including support for IPv6 addressing
- **Multiprotocol Label Switching (MPLS) Layer 3 VPN**
  allows Layer 3 VPNs across a provider network; uses MP-BGP to establish private routes for increased security; supports RFC 2547bis multiple autonomous system VPNs for added flexibility

Overview

- **Multiprotocol Label Switching (MPLS) Layer 2 VPN**
  establishes simple Layer 2 point-to-point VPNs across a provider network using only MPLS Label Distribution Protocol (LDP); requires no routing and therefore decreases complexity, increases performance, and allows VPNs of non-routable protocols; uses no routing information for increased security; supports Circuit Cross Connect (CCC), Static Virtual Circuits (SVCs), Martini draft, and Kompella-draft technologies
- **Virtual Private LAN Service (VPLS)**
  establishes point-to-multipoint Layer 2 VPNs across a provider network
- **IPv6 tunneling**
  provides an important element for the transition from IPv4 to IPv6; allows IPv6 packets to traverse IPv4-only networks by encapsulating the IPv6 packet into a standard IPv4 packet; supports manually configured, 6to4, Intra-Site Automatic Tunnel Addressing Protocol (ISATAP) tunnels, and IPv6 on VPN to Provider Edge (6VPE) router tunnel

Quality of Service (QoS)

- **IEEE 802.1p prioritization**
  delivers data to devices based on the priority and type of traffic
- **Flexible classification**
  creates traffic classes based on access control lists (ACLs), IEEE 802.1p precedence, IP, and DSCP or Type of Service (ToS) precedence; supports filter, redirect, mirror, remark, and logging
- **Bandwidth shaping**
  - **Port-based rate limiting**
    provides per-port ingress-/egress-enforced increased bandwidth
  - **Classifier-based rate limiting**
    uses an access control list (ACL) to enforce increased bandwidth for ingress traffic on each port
  - **Reduced bandwidth**
    provides per-port, per-queue egress-based reduced bandwidth
- **Broad QoS feature set**
  provides support for Strict Priority Queuing (SP), Weighted Fair Queuing (WFQ), Weighted Deficit Round Robin(WDRR), SP+WDRR together, configurable buffers, Explicit Congestion Notification (ECN), and Weighted Random Early Detection (WRED)
- **Traffic policing**
  supports Committed Access Rate (CAR) and line rate

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
- **User Datagram Protocol (UDP) helper**
  redirects UDP broadcasts to specific IP subnets to prevent server spoofing
- **Dynamic Host Configuration Protocol (DHCP)**
  simplifies the management of large IP networks and supports client and server; DHCP Relay enables DHCP operation across subnets

Management

- **Management interface control**
  enables or disables each of the following interfaces depending on security preferences: console port, Telnet port, or reset button
- **Industry-standard CLI with a hierarchical structure**
  reduces training time and expenses, and increases productivity in multivendor installations

Overview

- **SNMPv1, v2, and v3**
  provide complete support of SNMP; provide full support of industry-standard Management Information Base (MIB) plus private extensions; SNMPv3 supports increased security using encryption
- **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
- **Remote monitoring (RMON)**
  uses standard SNMP to monitor essential network functions; supports events, alarm, history, and statistics group plus a private alarm extension group
- **Debug and sampler utility**
  supports ping and traceroute for both IPv4 and IPv6
- **Network Time Protocol (NTP)**
  synchronizes timekeeping among distributed time servers and clients; keeps timekeeping consistent among all clock-dependent devices within the network so that the devices can provide diverse applications based on the consistent time
- **Network Quality Analyzer (NQA)**
  analyzes network performance and service quality by sending test packets, and provides network performance and service quality parameters such as jitter, TCP, or FTP connection delays and file transfer rates; allows a network manager to determine overall network performance and to diagnose and locate network congestion points or failures
- **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
- **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

Connectivity

- **Jumbo frames**
  allows high-performance backups and disaster-recovery systems with frame sizes of up to 10,000 bytes
- **Loopback**
  supports internal loopback testing for maintenance purposes and an increase in availability; loopback detection protects against incorrect cabling or network configurations and can be enabled on a per-port or per-VLAN basis for added flexibility
- **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
- **Monitor link**
  collects statistics on performance and errors on physical links, increasing system availability
- **Packet storm protection**
  protects against unknown broadcast, unknown multicast, or unicast storms with user-defined thresholds
- **Flow control**
  provides back pressure using standard IEEE 802.3x, reducing congestion in heavy traffic situations

Security

- **Access control list (ACL)**
  supports powerful ACLs for both IPv4 and IPv6; ACLs are used for filtering traffic to prevent unauthorized users from accessing the network, or for controlling network traffic to save resources; rules can either deny or permit traffic to be forwarded; rules can be based on a Layer 2 header or a Layer 3 protocol header; rules can be set to operate on specific dates or times
- **Remote Authentication Dial-In User Service (RADIUS)**
  eases switch security access administration by using a password authentication server

Overview

- **Terminal Access Controller Access-Control System (TACACS+)**
  delivers an authentication tool using TCP with encryption of the full authentication request, providing additional security
- **Secure shell (SSHv2)**
  uses external servers to securely log in to a remote device; with authentication and encryption, it protects against IP spoofing and plain-text password interception; increases the security of Secure FTP (SFTP) transfers
- **DHCP snooping**
  helps ensure that DHCP clients receive IP addresses from authorized DHCP servers and maintain a list of DHCP entries for trusted ports; prevents reception of fake IP addresses and reduces ARP attacks, improving security
- **IP Source Guard**
  filters packets on a per-port basis, which prevents illegal packets from being forwarded
- **ARP attack protection**
  protects against attacks that use a large number of ARP requests, using a host-specific, user-selectable threshold
- **Port security**
  allows access only to specified MAC addresses, which can be learned or specified by the administrator

Multicast support

- **Internet Group Management Protocol (IGMP)**
  utilizes Any-Source Multicast (ASM) or Source-Specific Multicast (SSM) to manage IPv4 multicast networks; supports IGMPv1, v2, and v3
- **Protocol Independent Multicast (PIM)**
  defines modes of Internet IPv4 and IPv6 multicasting to allow one-to-many and many-to-many transmission of information; PIM Dense Mode (DM), Sparse Mode (SM), and Source-Specific Mode (SSM) are supported

Warranty and support

- **1-year warranty**
  See **http://www.hpe.com/networking/warrantysummary** for warranty and support information included with your product purchase.
- **Software releases**
  to find software for your product, refer to **http://www.hpe.com/networking/support**; for details on the software releases available with your product purchase, refer to **http://www.hpe.com/networking/warrantysummary**

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.

HPE FlexFabric 12901E Switch Chassis JH951A

- Integrated MPU
- 1 - Integrated Fabric Module(No separate Fabric Module required)
- 1 - I/O module slots
- Must select Min 1 Power Supply
- Must select Min 2 Fan Trays
- 2U Height Rack

HPE FlexFabric 12902E Switch Chassis JH345A

- 2 - MPUx (Management Ports)
- 2 - I/O module slots
- 2 - Integrated Fabric modules(No separate Fabric Module required)
- Must select min 1 Management Module
- Must select min 2 Power Supplies
- Must select Min 2 Fan Trays
- 3U Height Rack

HPE FlexFabric 12904E Switch Chassis JH262A

- 2 - MPUx (Management Ports)
- 4 - I/O module slots
- 6 - Fabric module slots
- Must select min 1 Management Module
- Must select min 2 Power Supplies
- Must select Min 1 Fabric Module
- Must select Min 2 Fan Trays
- 6U Height Rack

HPE FlexFabric 12908E Switch Chassis JH255A

- 2 - MPUx (Management Ports)
- 8 - I/O module slots
- 6 - Fabric module slots
- Must select min 1 Management Module
- Must select min 2 Power Supplies
- Must select Min 1 Fabric Module
- Must select Min 2 Fan Trays
- 12U Height Rack

HPE FlexFabric 12916E Switch Chassis JH103A

- 2 - MPUx (Management Ports)
- 16 - I/O module slots
- 6 - Fabric module slots
- Must select min 1 Management Module
- Must select min 2 Power Supplies
- Must select Min 1 Fabric Module

Configuration

- Must select Min 2 Fan Trays
- 21U Height Rack

Remarks:

OCA Only Model Selection Form -
HPE Offering > DataCenter Networing > FlexFabric Switches - Core:
12900 Switch Series

Modules

Fabric Modules

JG619A, JH113A, System (std 0 // max 6) User Selection (min 4 // max 6) per Switch
JH262A, JH255A, JH103A System (std 0 // max 6) User Selection (min 1 // max 6) per switch enclosure
JH345A System (std 2 // max 2) User Selection (min 0 // max 0) per switch enclosure

HPE FlexFabric 12904E 2.5Tbps Type F Fabric Module	JH264A See Configuration **NOTE:** 1, 4
HPE 12904E 7.2Tbps Type H Fabric Mod	JH364A See Configuration **NOTE:** 1, 4, 7, 9
HPE 12908E 14.4Tbps Type H Fabric Mod	JH362A See Configuration **NOTE:** 1, 5, 7. 10
HPE FlexFabric 12908E 5.0Tbps Type F Fabric Module	JH257A See Configuration **NOTE:** 1, 5
HPE FlexFabric 12910 1.92Tbps Type A Fabric Module	JG622A See Configuration **NOTE:** 1, 2, 8
HPE FlexFabric 12910 3.84Tbps Type B Fabric Module	JG623A See Configuration **NOTE:** 1, 2, 8
HPE FlexFabric 12916E 10.0Tbps Type F Fabric Module	JH252A See Configuration **NOTE:** 1, 6
HPE FlexFabric 12916E 21.6Tbps Type H Fabric Module	JH361A See Configuration **NOTE:** 1, 6, 7, 11
HPE FlexFabric 12916E 43.2Tbps Type H Fabric Module	JH435A

Configuration

See Configuration
NOTE: 1, 6, 7, 11

Configuration Rules:

Note 1 If more than 1 Fabric Module is selected, they must be of the same Type.

Note 2 This Fabric Module is only supported on switch JG619A.

Note 3 This Fabric Module is only supported on switch JG632A.

Note 4 This Fabric Module is only supported on switch JH262A.

Note 5 This Fabric Module is only supported on switch JH255A.

Note 6 This Fabric Module is only supported on switch JH103A.

Note 7 Only H Series I/O Modules are supported

Note 8 Only EA/EB/EC Series I/O Modules are supported

Note 9 If a 12904E Switch Chassis is configured with a Type H Fabric Module, then qty 2 of the following High Speed Fan Tray must be selected:
HPE FlexFabric 12904E High Speed Fan Tray Assembly JH448A

Note 10 If a 12908E Switch Chassis is configured with a Type H Fabric Module, then qty 2 of the following High Speed Fan Tray must be selected:
HPE FlexFabric 12908E Spare High Speed Fan Tray Assembly JH424A

Note 11 If a 12916E Switch Chassis is configured with a Type H Fabric Module, then qty 2 of the following High Speed Fan Tray must be selected:
HPE FlexFabric 12916E Spare High Speed Fan Tray Assembly JH423A

Management Modules

System (std 0 // max 2) User Selection (min 1 // max 2) per Switch

HPE FlexFabric 12910 Main Processing Unit JG621A
- No supported Transceivers

See Configuration
NOTE: 1

HPE FlexFabric 12902E Main Processing Unit JH346A
- No supported Transceivers

See Configuration
NOTE: 5

HPE FlexFabric 12904E v2 Main Processing Unit JH668A
- No supported Transceivers

See Configuration
NOTE: 4

HPE FlexFabric 12900E v2 Main Processing Unit JH669A
- No supported Transceivers

See Configuration
NOTE: 3

Configuration

Configuration Rules:

Note 1 The following Switches support this Module:

HPE FlexFabric 12910 Switch AC Chassis	JG619A

Note 3 The following Switches support this Module:

HPE FlexFabric 12908E Switch Chassis	JH255A
HPE FlexFabric 12916E Switch Chassis	JH103A

Note 4 The following Switches support this Module:

HPE FlexFabric 12904E Switch Chassis	JH262A

Note 5 The following Switches support this Module:

HPE FlexFabric 12902E Switch Chassis	JH345A

Accessory

HPE FlexFabric 12900E LPU Adapter — JH107A
See Configuration
NOTE: 1, 2

Configuration Rules

Note 1 This Adapter is REQUIRED if any FX/FE I/O module is added to the below switches: (1 per module)

HPE FlexFabric 12904E Switch Chassis	JH262A
HPE FlexFabric 12908E Switch Chassis	JH255A
HPE FlexFabric 12916E Switch Chassis	JH103A

Note 2 This Adapter is not compatible with the following switch:

HPE FlexFabric 12902E Switch Chassis	JH345A

I/O Modules

JG619A, JH113A - System (std 0 // max 10) User Selection (min 1 // max 10)
JG632A - System (std 0 // max 16) User Selection (min 1 // max 16)
12904E (std 0 // max 4) User Selection (min 1 // max 4) per switch enclosure
12908E (std 0 // max 8) User Selection (min 1 // max 8) per switch enclosure
12916E (std 0 // max 16) User Selection (min 1 // max 16) per switch enclosure
JH345A (std 0 // max 2) User Selection (min 1 // max 2) per switch enclosure
JH951A (std 0 // max 1) User Selection (min 0 // max 1) per switch enclosure

HPE FlexFabric 12900 48-port GbE SFP EB Module — JG855A
- Min 0 // Max 48 SFP+ Transceivers

See Configuration
NOTE: 1, 6

HPE FlexFabric 12900 48-port 10/100/1000BASE-T EB Module — JG856A
- No supported Transceiver

See Configuration
NOTE: 6

HPE FlexFabric 12900 48-port 10/100/1000BASE-T FX Module — JH242A

Configuration

• No supported Transceivers	See Configuration **NOTE:** 6
HPE FlexFabric 12900 48-port 1/10GBASE-T FX Module	JH007A
• No supported Transceivers	See Configuration **NOTE:** 6, 11
HPE FlexFabric 12900 48-port GbE SFP FX Module	JH241A
• Min 0 // Max 48 SFP Transceivers	See Configuration **NOTE:** 1, 6
HPE FlexFabric 12900 48-port 10GbE SFP+ EA Module	JG624A
• Min 0 // Max 48 SFP+ Transceivers	See Configuration **NOTE:** 1, 2, 4, 6
HPE FlexFabric 12900 48-port 1/10GbE SFP+ EC Module	JG626A
• Min 0 // Max 48 SFP+ Transceivers	See Configuration **NOTE:** 1, 2, 4, 6
HPE FlexFabric 12900 48-port 1/10GbE SFP+ FE Module	JH249A
• Min 0 // Max 48 SFP+ Transceivers	See Configuration **NOTE:** 1, 2, 6, 11, 13
HPE FlexFabric 12900 36-port 40GbE QSFP+ FX Module	JH045A
• Min 0 // Max 36 QSFP+ Transceivers	See Configuration **NOTE:** 3, 6, 11
HPE 12900E 36p 100GbE QSFP28 HB Mod	JH357A
• Min 0 // Max 36 QSFP+/QSFP28 Transceivers	See Configuration **NOTE:** 3, 10, 11, 14, 16, 19
HPE 12900E 48p 40GbE QSFP+ HB Mod	JH359A
• Min 0 // Max 48 QSFP+ Transceivers	See Configuration **NOTE:** 3, 10, 11, 16
HPE 12900E 48p 10G/2p 100G HB Mod	JH360A
• Min 0 // Max 2 QSFP+/QSFP28 Transceivers • Min 0 // Max 48 SFP/SFP+ Transceivers	See Configuration **NOTE:** 1, 2, 10, 11, 13, 14, 15, 16, 19
HPE FlexFabric 12900E 18-port 100G QSFP28/18-port 40G QSFP+ HB Module	JH422A
• Min 0 // Max 18 QSFP28 100G Transceivers • Min 0 // Max 18 QSFP+ 40G Transceivers	See Configuration **NOTE:** 3, 10, 11, 14, 16, 19
HPE FlexFabric 12900E 18-port 100G QSFP28/18-port 40G QSFP+ HF Module	JH425A

Configuration

• Min 0 // Max 18 QSFP28 100G Transceivers • Min 0 // Max 18 QSFP+ 40G Transceivers	See Configuration **NOTE:** 3, 10, 11, 14, 16
HPE FlexFabric 12900E 24p 10G/2p 40G HB 59xx Slot Module • Min 0 // Max 1 59XX Module • Min 0 // Max 24 SFP+ 10G Transceivers • Min 0 // Max 2 QSFP+ 40G Transceivers	JH953A See Configuration **NOTE:** 1, 10, 11, 13, 15, 16, 17, 22
HPE FlexFabric 12900E 48-port 10GbE SFP+ HF Module • Min 0 // Max 48 SFP+ 10G Transceivers	JQ061A See Configuration **NOTE:** 10, 11, 16, 20, 22
HPE FlexFabric 12900 24-port 40GbE QSFP+ FE Module • Min 0 // Max 24 QSFP+ Transceivers	JH250A See Configuration **NOTE:** 3, 6, 11
HPE FlexFabric 12900 48-port 1/10GbE SFP+ FX Module • Min 0 // Max 48 SFP+ Transceivers	JG888B See Configuration **NOTE:** 1, 2, 6, 11, 13
HPE FlexFabric 12900 24-port 40GbE QSFP+ FX Module • Min 0 // Max 24 QSFP+ Transceivers	JG889B See Configuration **NOTE:** 3, 6, 11
HPE FlexFabric 12900 16-port 40GbE QSFP+ EA Module • Min 0 // Max 16 QSFP+ Transceivers	JG625A See Configuration **NOTE:** 3, 6
HPE FlexFabric 12900 12-port 40GbE QSFP+ EC Module • Min 0 // Max 12 QSFP+ Transceivers	JG857A See Configuration **NOTE:** 3, 6
HPE FlexFabric 12900 12-port 40GbE QSFP+ FX Module • Min 0 // Max 12 QSFP+ Transceivers	JH005A See Configuration **NOTE:** 3, 6, 11
HPE FlexFabric 12900E 24-port 10GbE and 4-port 100GbE HD 59xx Slot Module • Min 0 // Max 1 59XX Module • Min 0 // Max 24 SFP/SFP+ Transceivers • Min 0 // Max 4 QSFP28 Transceivers	JH954A See Configuration **NOTE:** 1, 10, 11, 13, 14, 16, 18, 22
HPE FlexFabric 12900 4-port 100GbE CFP EC Module • Min 0 // Max 4 CFP Transceivers	JG858A See Configuration **NOTE:** 5, 6
HPE FlexFabric 12900 8-port 100GbE CXP FX Module	JH006A

Configuration

- Min 0 // Max 8 CXP Transceivers — See Configuration **NOTE:** 6, 7, 11

HPE FlexFabric 12900 8-port 100GbE CFP2 FX Module — JH288A

- Min 0 // Max 8 CFP2 Transceivers — See Configuration **NOTE:** 6, 11, 12

Configuration Rules

Note 1 The following Transceivers install into this Module:

HPE X120 1G SFP LC LH100 Transceiver	JD103A
HPE X125 1G SFP LC LH40 1310nm Transceiver	JD061A
HPE X120 1G SFP LC LH40 1550nm Transceiver	JD062A
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 X125 1G SFP LC LH70 Transceiver	JD063B
HPE X120 1G SFP LC BX 10-U Transceiver	JD098B
HPE X120 1G SFP LC BX 10-D Transceiver	JD099B

Note 2 The following Transceivers install into this Module:

HPE X130 10G SFP+ LC SR Transceiver	JD092B
HPE X130 10G SFP+ LC LR Transceiver	JD094B
HPE X130 10G SFP+ LC SR Data Center Transceiver	JL437A
HPE X130 10G SFP+ LC LR Data Center Transceiver	JL439A
HPE FlexNetwork X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable	JD095C
HPE FlexNetwork X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JD096C
HPE FlexNetwork X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD097C
HPE FlexNetwork X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable	JG081C
HPE FlexNetwork X240 10G SFP+ SFP+ 7m Direct Attach Copper Cable	JC784C
HPE X130 10G SFP+ LC ER 40km Transceiver	JG234A
HPE X130 10G SFP+ LC LH 80km Transceiver	JG915A
HPE X2A0 10G SFP+ to SFP+ 7m Active Optical Cable	JL290A
HPE X2A0 10G SFP+ to SFP+ 10m Active Optical Cable	JL291A
HPE X2A0 10G SFP+ to SFP+ 20m Active Optical Cable	JL292A

Note 3 The following 40G Transceivers install into this Module:

HPE X140 40G QSFP+ LC LR4 SM 10km 1310nm Transceiver	JG661A
HPE X140 40G QSFP+ LC BiDi 100m MM Transceiver	JL251A
HPE X140 40G QSFP+ MPO SR4 Transceiver	JG325B
HPE X140 40G QSFP+ MPO MM 850nm CSR4 300m Transceiver	JG709A
HPE X140 40G QSFP+ LC ER4 40km SM Transceiver	JL306A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 1m Direct Attach Copper Cable	JG326A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 3m Direct Attach Copper Cable	JG327A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 5m Direct Attach Copper Cable	JG328A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 1m Direct Attach Copper Splitter Cable	JG329A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 3m Direct Attach Copper Splitter Cable	JG330A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 5m Direct Attach Copper Splitter Cable	JG331A
HPE X140 40G QSFP+ LC LR4L 2km SM Transceiver	JL286A
HPE X2A0 40G QSFP+ to QSFP+ 7m Active Optical Cable	JL287A
HPE X2A0 40G QSFP+ to QSFP+ 10m Active Optical Cable	JL288A
HPE X2A0 40G QSFP+ to QSFP+ 20m Active Optical Cable	JL289A

Configuration

Note 4	The following Transceivers install into this Module:	
	HPE X130 10G SFP+ LC LRM Transceiver	JD093B
	HPE X130 10G SFP+ LC LRM Data Center Transceiver	JL438A
Note 5	The following Transceivers install into this Module:	
	HP X150 100G CFP LC LR4 10km SM Transceiver	JG829A
Note 6	FC/FX Modules If (JG619A) AND (JH006A, JG888B, JG889B, JH005A, JH007A, JH121A, JH117A, JH249A, JH045A, JH250A, JH118A, JH119A, JH120A, or JH288A) are selected, Then cannot be used in conjunction with EA, EB or EC Modules JG855A, JG856A, JH242A, JG624A, JH241A, JG626A, JG625A, JG857A, or JG858A.	
Note 7	The following CXP Transceivers install into this Module:	
	HPE X150 100G CXP MPO SR 100m Multimode Transceiver	JG881A
	HPE X2A0 100G CXP CXP 10m Active Optical Cable	JG882A
	HPE X2A0 100G CXP CXP 30m Active Optical Cable	JG883A
Note 10	HB Type Modules are only compatible with Type H Fabric Modules and vice versa:	
	HPE FlexFabric 12904E 7.2Tbps Type H Fabric Module	JH364A
	HPE FlexFabric 12908E 14.4Tbps Type H Fabric Module	JH362A
	HPE FlexFabric 12916E 21.6Tbps Type H Fabric Module	JH361A
	HPE FlexFabric 12916E 43.2Tbps Type H Fabric Module	JH435A
Note 11	The following switches only support these modules: (FX, FE line cards modules)	
	HPE FlexFabric 12904E Switch Chassis	JH262A
	HPE FlexFabric 12908E Switch Chassis	JH255A
	HPE FlexFabric 12916E Switch Chassis	JH103A
Note 12	The following Transceivers install into this Module:	
	HPE X150 100G CFP2 LC LR4 10km SM Transceiver	JH289A
Note 13	The following LC Transceiver install into this module:	
	HPE X130 10G SFP+ LC LH80 tunable Transceiver	JL250A
Note 14	The following QSFP28 Transceivers install into this switch:	
	HPE X150 100G QSFP28 MPO SR4 100m MM Transceiver	JL274A
	HPE X150 100G QSFP28 LC LR4 10km SM Transceiver	JL275A
	HPE X240 100G QSFP28 to QSFP28 1m Direct Attach Copper Cable	JL271A
	HPE X240 100G QSFP28 to QSFP28 3m Direct Attach Copper Cable	JL272A
	HPE X2A0 100G QSFP28 to QSFP28 7m Active Optical Cable	JL276A
	HPE X2A0 100G QSFP28 to QSFP28 10m Active Optical Cable	JL277A
	HPE X2A0 100G QSFP28 to QSFP28 20m Active Optical Cable	JL278A
	HPE X240 100G QSFP28 to QSFP28 5m Direct Attach Copper Cable	JL273A
	HPE X150 100G QSFP28 CWDM4 2km SM Transceiver	JH673A
Note 15	The following 40G Transceivers install into this Module:	
	HPE X140 40G QSFP+ LC LR4 SM 10km 1310nm Transceiver	JG661A
	HPE X140 40G QSFP+ LC BiDi 100m MM Transceiver	JL251A
	HPE X140 40G QSFP+ MPO SR4 Transceiver	JG325B
	HPE X140 40G QSFP+ MPO MM 850nm CSR4 300m Transceiver	JG709A
	HPE X140 40G QSFP+ LC ER4 40km SM Transceiver	JL306A

Configuration

	HPE FlexNetwork X240 40G QSFP+ QSFP+ 1m Direct Attach Copper Cable	JG326A
	HPE FlexNetwork X240 40G QSFP+ QSFP+ 3m Direct Attach Copper Cable	JG327A
	HPE FlexNetwork X240 40G QSFP+ QSFP+ 5m Direct Attach Copper Cable	JG328A
	HPE X140 40G QSFP+ LC LR4L 2km SM Transceiver	JL286A
	HPE X2A0 40G QSFP+ to QSFP+ 7m Active Optical Cable	JL287A
	HPE X2A0 40G QSFP+ to QSFP+ 10m Active Optical Cable	JL288A
	HPE X2A0 40G QSFP+ to QSFP+ 20m Active Optical Cable	JL289A
Note 16	The following switch only supports this module:	
	HPE FlexFabric 12902E Switch Chassis	JH345A
	HPE FlexFabric 12901E Switch Chassis	JH951A
Note 17	This module can have the following 5930/5940 I/O Module installed into it:	
	HPE 5930 24-port SFP+ and 2-port QSFP+ Module	JH180A
	HPE 5930 24-port SFP+ and 2-port QSFP+ with MACsec Module	JH181A
	HPE 5930 24-port 10GBASE-T and 2-port QSFP+ with MACsec Module	JH182A
	HPE 5930 8-port QSFP+ Module	JH183A
	HPE 5930 24-port Converged Port and 2-port QSFP+ Module	JH184A
Note 18	This module can have the following 5950 I/O Module installed into it:	
	HPE 5950 8-port QSFP28 Module	JH406A
	HPE 5950 16-port QSFP+ Module	JH405A
	HPE FlexFabric 5950 24-port SFP28 and 2-port QSFP28 Module	JH450A
	HPE FlexFabric 5950 8-port QSFP28 MACsec Module	JH957A
Note 19	The following QSFP28 Transceivers install into this switch:	
	HPE X150 100G QSFP28 LC SWDM4 100m MM Transceiver	JH419A
Note 20	The following Transceivers install into this Module:	
	HPE X125 1G SFP LC LH70 Transceiver	JD063B
Note 21	The following Transceivers install into this Module:	
	HPE X125 1G SFP LC LH70 Transceiver	JD063B
	HPE X120 1G SFP LC BX 10-U Transceiver	JD098B
	HPE X120 1G SFP LC BX 10-D Transceiver	JD099B
Note 22	The following Transceivers install into this Module:	
	HPE X130 10G SFP+ LC SR Transceiver	JD092B
	HPE X130 10G SFP+ LC LR Transceiver	JD094B
	HPE X130 10G SFP+ LC SR Data Center Transceiver	JL437A
	HPE X130 10G SFP+ LC LR Data Center Transceiver	JL439A
	HPE FlexNetwork X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable	JD095C
	HPE FlexNetwork X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JD096C
	HPE FlexNetwork X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD097C
	HPE FlexNetwork X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable	JG081C
	HPE FlexNetwork X240 10G SFP+ SFP+ 7m Direct Attach Copper Cable	JC784C
	HPE X130 10G SFP+ LC ER 40km Transceiver	JG234A
	HPE X130 10G SFP+ LC LH 80km Transceiver	JG915A

Configuration

Remarks: OCA BLUE TEXT: The 12900 switch software image for FX/FC LPUs does not support EA, EB & EC LPUs and vice versa.

59XX Modules

JH953A and JH954A (std 0 // max 1) User Selection (min 0 // max 1)

HPE 5930 24-port SFP+ and 2-port QSFP+ Module — JH180A
- Can install into JH953A
- 24 10G SFP+ ports (min=0 \ max=24)
- 2 40G QSFP+ ports (min=0 \ max=2)

See Configuration
NOTE: 3, 4, 5, 10, 11

HPE 5930 24-port SFP+ and 2-port QSFP+ with MACsec Module — JH181A
- Can install into JH953A
- 24 10G SFP+ ports (min=0 \ max=24)
- 2 40G QSFP+ ports (min=0 \ max=2)

See Configuration
NOTE: 3, 4, 10, 11

HPE 5930 24-port 10GBASE-T and 2-port QSFP+ with MACsec Module — JH182A
- Can install into JH953A
- 24 1/10GBase-T ports
- 2 40G QSFP+ ports (min=0 \ max=2)

See Configuration
NOTE: 3, 7

HPE 5930 8-port QSFP+ Module — JH183A
- Can install into JH953A
- 8 40G QSFP+ ports (min=0 \ max=8)

See Configuration
NOTE: 2

HPE 5930 24-port Converged Port and 2-port QSFP+ Module — JH184A
- Can install into JH953A
- 24 Converged SFP+/FC ports (min=0 \ max=24)
- 2 40G QSFP+ ports (min=0 \ max=2)

See Configuration
NOTE: 1, 2, 10, 11

HPE 5950 16-port QSFP+ Module — JH405A
- Can install into JH954A
- 16 40G QSFP+ ports (min=0 \ max=16)

See Configuration
NOTE: 3

HPE 5950 8-port QSFP28 Module — JH406A
- Can install into JH954A
- 8 40G/100G QSFP+/QSFP28 ports (min=0 \ max=8)

See Configuration
NOTE: 2, 5, 8, 13

HPE FlexFabric 5950 24-port SFP28 and 2-port QSFP28 Module — JH450A
- Can instal into JH954A
- 24 10G/25G SFP+/SFP28 ports (min=0 \ max=24)
- 2 40G/100G QSFP+/QSFP28 ports (min=0 \ max=2)

See Configuration
NOTE: 2, 5, 8, 9, 13

HPE FlexFabric 5950 8-port QSFP28 MACsec Module — JH957A
- Can install into JH954A
- 8 40G/100G QSFP+/QSFP28 ports (min=0 \ max=8)

See Configuration
NOTE: 2, 8

Configuration Rules

Configuration

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

HPE X130 10G SFP+ LC SR Transceiver	JD092B
HPE X130 10G SFP+ LC LR Transceiver	JD094B
HPE X130 10G SFP+ LC SR Data Center Transceiver	JL437A
HPE X130 10G SFP+ LC LR Data Center Transceiver	JL439A
HPE X130 10G SFP+ LC LH 80km Transceiver	JG915A
HPE X130 10G SFP+ LC ER 40km Transceiver	JG234A
HPE FlexNetwork X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable	JD095C
HPE FlexNetwork X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JD096C
HPE FlexNetwork X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD097C
HPE FlexNetwork X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable	JG081C
HPE FlexNetwork X240 10G SFP+ SFP+ 7m Direct Attach Copper Cable	JC784C
HPE X2A0 10G SFP+ to SFP+ 7m Active Optical Cable	JL290A
HPE X2A0 10G SFP+ to SFP+ 10m Active Optical Cable	JL291A
HPE X2A0 10G SFP+ to SFP+ 20m Active Optical Cable	JL292A

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

HPE X140 40G QSFP+ LC LR4 SM 10km 1310nm Transceiver	JG661A
HPE X140 40G QSFP+ LC BiDi 100m MM Transceiver	JL251A
HPE X140 40G QSFP+ MPO SR4 Transceiver	JG325B
HPE X140 40G QSFP+ LC ER4 40km SM Transceiver	JL306A
HPE X140 40G QSFP+ MPO MM 850nm CSR4 300m Transceiver	JG709A
HPE X140 40G QSFP+ LC LR4L 2km SM Transceiver	JL286A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 1m Direct Attach Copper Cable	JG326A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 3m Direct Attach Copper Cable	JG327A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 5m Direct Attach Copper Cable	JG328A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 1m Direct Attach Copper Splitter Cable	JG329A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 3m Direct Attach Copper Splitter Cable	JG330A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 5m Direct Attach Copper Splitter Cable	JG331A

Note 3 The following 40G Transceivers install into this Module's QSFP+ Ports: (Use #0D1 or #B01 if switch is CTO) - if applicable

HPE X140 40G QSFP+ LC LR4 SM 10km 1310nm Transceiver	JG661A
HPE X140 40G QSFP+ LC BiDi 100m MM Transceiver	JL251A
HPE X140 40G QSFP+ LC ER4 40km SM Transceiver	JL306A
HPE X140 40G QSFP+ MPO SR4 Transceiver	JG325B
HPE X140 40G QSFP+ MPO MM 850nm CSR4 300m Transceiver	JG709A
HPE X140 40G QSFP+ LC LR4L 2km SM Transceiver	JL286A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 1m Direct Attach Copper Cable	JG326A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 3m Direct Attach Copper Cable	JG327A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 5m Direct Attach Copper Cable	JG328A

Note 4 The following 10G Transceivers install into this Module's SFP+ Ports: (Use #0D1 or #B01 if switch is CTO) - if applicable

HPE X2A0 10G SFP+ to SFP+ 7m Active Optical Cable	JL290A
HPE X2A0 10G SFP+ to SFP+ 10m Active Optical Cable	JL291A
HPE X2A0 10G SFP+ to SFP+ 20m Active Optical Cable	JL292A

Configuration

Note 5 The following 40G Transceivers install into this Module's QSFP+ Ports: (Use #0D1 or #B01 if switch is CTO) - if applicable

HPE X2A0 40G QSFP+ to QSFP+ 7m Active Optical Cable	JL287A
HPE X2A0 40G QSFP+ to QSFP+ 10m Active Optical Cable	JL288A
HPE X2A0 40G QSFP+ to QSFP+ 20m Active Optical Cable	JL289A

Note 7 The following SFP+ Transceivers install into this Module's SFP+ Ports: (Use #0D1 or #B01 if switch is CTO) - if applicable

HPE X130 10G SFP+ LC SR Transceiver	JD092B
HPE X130 10G SFP+ LC LR Transceiver	JD094B
HPE X130 10G SFP+ LC SR Data Center Transceiver	JL437A
HPE X130 10G SFP+ LC LR Data Center Transceiver	JL439A
HPE FlexNetwork X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable	JD095C
HPE FlexNetwork X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JD096C
HPE FlexNetwork X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD097C
HPE FlexNetwork X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable	JG081C
HPE FlexNetwork X240 10G SFP+ SFP+ 7m Direct Attach Copper Cable	JC784C
HPE X2A0 10G SFP+ to SFP+ 7m Active Optical Cable	JL290A
HPE X2A0 10G SFP+ to SFP+ 10m Active Optical Cable	JL291A
HPE X2A0 10G SFP+ to SFP+ 20m Active Optical Cable	JL292A

Note 8 The following QSFP28 Transceivers install into this Module's QSFP28 Ports: (Use #0D1 or #B01 if switch is CTO) - if applicable

HPE X150 100G QSFP28 MPO SR4 100m MM Transceiver	JL274A
HPE X150 100G QSFP28 LC LR4 10km SM Transceiver	JL275A
HPE X2A0 100G QSFP28 to QSFP28 7m Active Optical Cable	JL276A
HPE X2A0 100G QSFP28 to QSFP28 10m Active Optical Cable	JL277A
HPE X2A0 100G QSFP28 to QSFP28 20m Active Optical Cable	JL278A
HPE X150 100G QSFP28 MPO PSM4 500m SM Transceiver	JH420A
HPE X150 100G QSFP28 CWDM4 2km SM Transceiver	JH673A
HPE X240 100G QSFP28 to QSFP28 1m Direct Attach Copper Cable	JL271A
HPE X240 100G QSFP28 to QSFP28 3m Direct Attach Copper Cable	JL272A
HPE X240 100G QSFP28 to QSFP28 5m Direct Attach Copper Cable	JL273A

Note 9 The following SFP28 Transceivers install into this Module's SFP28 Ports: (Use #0D1 or #B01 if switch is CTO) - if applicable

HPE X190 25G SFP28 LC SR 100m MM Transceiver	JL293A
HPE X240 25G SFP28 to SFP28 1m Direct Attach Copper Cable	JL294A
HPE X240 25G SFP28 to SFP28 3m Direct Attach Copper Cable	JL295A

Note 10 The following Transceivers install into this Module:

HPE X120 1G SFP LC LH40 1550nm Transceiver	JD062A
HPE X125 1G SFP LC LH70 Transceiver	JD063B

Note 11 The following SFP+ Transceivers install into this Module's SFP+ Ports: (Use #0D1 or #B01 if switch is CTO) - if applicable

HPE X130 10G SFP+ LC SR Transceiver	JD092B
HPE X130 10G SFP+ LC LR Transceiver	JD094B
HPE X130 10G SFP+ LC SR Data Center Transceiver	JL437A
HPE X130 10G SFP+ LC LR Data Center Transceiver	JL439A
HPE FlexNetwork X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable	JD095C

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HPE FlexNetwork X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JD096C
HPE FlexNetwork X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD097C
HPE FlexNetwork X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable	JG081C
HPE X2A0 10G SFP+ to SFP+ 7m Active Optical Cable	JL290A
HPE X2A0 10G SFP+ to SFP+ 10m Active Optical Cable	JL291A
HPE X2A0 10G SFP+ to SFP+ 20m Active Optical Cable	JL292A

Note 13 The following QSFP28 Transceivers install into this switch:

HPE X150 100G QSFP28 LC SWDM4 100m MM Transceiver	JH419A

Remarks:

OCA BLUE TEXT: These Modules can be installed into the JH953A or JH954A I/O Modules only.

Transceivers

SFP Transceivers

HPE X120 1G SFP RJ45 T Transceiver	JD089B
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
HPE X120 1G SFP LC LH40 1550nm Transceiver	JD062A
HPE X120 1G SFP LC SX Transceiver	JD118B
HPE X120 1G SFP LC LX Transceiver	JD119B
HPE X125 1G SFP LC LH40 1310nm Transceiver	JD061A
HPE X125 1G SFP LC LH70 Transceiver	JD063B
HPE X170 1G SFP LC LH70 1570 Transceiver	JD110A

SFP+ Transceivers

HPE X130 10G SFP+ LC SR Transceiver	JD092B
HPE X130 10G SFP+ LC LRM Transceiver	JD093B
HPE X130 10G SFP+ LC LR Transceiver	JD094B
HPE X130 10G SFP+ LC SR Data Center Transceiver	JL437A
HPE X130 10G SFP+ LC LRM Data Center Transceiver	JL438A
HPE X130 10G SFP+ LC LR Data Center Transceiver	JL439A
HPE X130 10G SFP+ LC ER 40km Transceiver	JG234A
HPE X130 10G SFP+ LC LH 80km Transceiver	JG915A
HPE X130 10G SFP+ LC LH80 tunable Transceiver	JL250A
HPE FlexNetwork X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable	JD095C
HPE FlexNetwork X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JD096C
HPE FlexNetwork X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD097C
HPE FlexNetwork X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable	JG081C
HPE FlexNetwork X240 10G SFP+ SFP+ 7m Direct Attach Copper Cable	JC784C
HPE X2A0 10G SFP+ to SFP+ 7m Active Optical Cable	JL290A
HPE X2A0 10G SFP+ to SFP+ 10m Active Optical Cable	JL291A
HPE X2A0 10G SFP+ to SFP+ 20m Active Optical Cable	JL292A

SFP28 Transceivers

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HPE X190 25G SFP28 LC SR 100m MM Transceiver	JL293A
HPE X240 25G SFP28 to SFP28 1m Direct Attach Copper Cable	JL294A
HPE X240 25G SFP28 to SFP28 3m Direct Attach Copper Cable	JL295A

QSFP+ Transceivers

HPE X140 40G QSFP+ LC LR4 SM 10km 1310nm Transceiver	JG661A
HPE X140 40G QSFP+ LC BiDi 100m MM Transceiver	JL251A
HPE X140 40G QSFP+ MPO SR4 Transceiver	JG325B
HPE X140 40G QSFP+ MPO MM 850nm CSR4 300m Transceiver	JG709A
HPE X140 40G QSFP+ LC LR4L 2km SM Transceiver	JL286A
HPE X140 40G QSFP+ LC ER4 40km SM Transceiver	JL306A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 1m Direct Attach Copper Cable	JG326A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 3m Direct Attach Copper Cable	JG327A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 5m Direct Attach Copper Cable	JG328A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 1m Direct Attach Copper Splitter Cable	JG329A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 3m Direct Attach Copper Splitter Cable	JG330A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 5m Direct Attach Copper Splitter Cable	JG331A
HPE X2A0 40G QSFP+ to QSFP+ 7m Active Optical Cable	JL287A
HPE X2A0 40G QSFP+ to QSFP+ 10m Active Optical Cable	JL288A
HPE X2A0 40G QSFP+ to QSFP+ 20m Active Optical Cable	JL289A

QSFP28 Transceivers

HPE X150 100G QSFP28 MPO SR4 100m MM Transceiver	JL274A
HPE X150 100G QSFP28 LC LR4 10km SM Transceiver	JL275A
HPE X150 100G QSFP28 MPO PSM4 500m SM Transceiver	JH420A
HPE X150 100G QSFP28 CWDM4 2km SM Transceiver	JH673A
HPE X150 100G QSFP28 LC SWDM4 100m MM Transceiver	JH419A
HPE X240 100G QSFP28 to QSFP28 1m Direct Attach Copper Cable	JL271A
HPE X240 100G QSFP28 to QSFP28 3m Direct Attach Copper Cable	JL272A
HPE X240 100G QSFP28 to QSFP28 5m Direct Attach Copper Cable	JL273A
HPE X2A0 100G QSFP28 to QSFP28 7m Active Optical Cable	JL276A
HPE X2A0 100G QSFP28 to QSFP28 10m Active Optical Cable	JL277A
HPE X2A0 100G QSFP28 to QSFP28 20m Active Optical Cable	JL278A

CFP2 Transceivers

HPE X150 100G CFP2 LC LR4 10km SM Transceiver	JH289A

CXP Transceivers

HPE X150 100G CXP MPO SR 100m Multimode Transceiver	JG881A
HPE X2A0 100G CXP CXP 10m Active Optical Cable	JG882A
HPE X2A0 100G CXP CXP 30m Active Optical Cable	JG883A

Cables

Configuration

MPO Cables

HPE Multi Fiber Push On to 4 x Lucent Connector 5m Cable	K2Q46A
HPE Multi Fiber Push On to 4 x Lucent Connector 15m Cable	K2Q47A

Internal Power Supplies

12901E (std 0 // max 2) User Selection (min 1 // max 2) per switch enclosure
12902E (std 0 // max 4) User Selection (min 2 // max 4) per switch enclosure
12910 (std 0 // max 8) User Selection (min 2 // max 8) per switch enclosure
12916 (std 0 // max 12) User Selection (min 2 // max 12) per switch enclosure
12904E (std 0 // max 4) User Selection (min 2 // max 4) per switch enclosure
12908E (std 0 // max 8) User Selection (min 2 // max 8) per switch enclosure
12916E (std 0 // max 16) User Selection (min 2 // max 16) per switch enclosure

HPE 12500 2000W AC Power Supply	JF429A See Configuration **NOTE:** 3
HPE 12900E 2400W DC PSU	JH269A See Configuration **NOTE:** 4, 5
HPE FlexFabric 12902E 1800W DC Power Supply Unit	JH671A See Configuration **NOTE:** 6, 7
HPE FlexFabric 12900E 2400W AC Power Supply Unit	JH108A See Configuration **NOTE:** 2, 4
PDU Cable NA/MEX/TW/JP • C19 PDU Jumper Cord (NA/MEX/TW/JP)	JH108A#B2B
PDU Cable ROW • C19 PDU Jumper Cord (ROW)	JH108A#B2C
High Volt Switch to Wall Power Cord • NEMA L6-20P Cord (NA/MEX/JP/TW)	JH108A#B2E
No Power Cord • No Power Cord Selected	JH108A#AC3
HPE FlexFabric 12900E 3000W AC Power Supply Unit	JH348A See Configuration **NOTE:** 2, 4
PDU Cable NA/MEX/TW/JP • C19 PDU Jumper Cord (NA/MEX/TW/JP)	JH348A#B2B
PDU Cable ROW	JH348A#B2C

Configuration

- C19 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord JH348A#B2E
- NEMA L6-20P Cord (NA/MEX/JP/TW)

No Power Cord JH348A#AC3
- No Power Cord Selected

HPE FlexFabric 7900 1800w AC Power Supply Unit JG840A
See Configuration
NOTE: 2, 6

PDU Cable NA/MEX/TW/JP JG840A#B2B
- C19 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW JG840A#B2C
- C19 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord JG840A#B2E
- NEMA L6-20P Cord (NA/MEX/JP/TW)

No Power Cord JG840A#AC3
- No Power Cord Selected

Configuration Rules:

Note 2 Localization (Wall Power Cord) required on orders without #B2B or #B2C (PDU Power Cord). (See Localization Menu)

Note 3 This Power is only supported on these switches:

HPE FlexFabric 12910 Switch AC Chassis	JG619A
HPE FlexFabric 12916 Switch AC Chassis	JG632A
HPE FlexFabric 12910 TAA-compliant Switch AC Chassis	JH113A

Note 4 This Power is only supported on these switches:

HPE FlexFabric 12904E Switch Chassis	JH262A
HPE FlexFabric 12908E Switch Chassis	JH255A
HPE FlexFabric 12916E Switch Chassis	JH103A
HPE FlexFabric 12901E Switch Chassis	JH951A

Note 5 One of these cables is required when ordering this power supply:

HPE FlexFabric 12900E 48V 3m DC Power Supply Unit Cable	JQ232A

Note 6 This Power Supply is supported on this switches:

HPE FlexFabric 12902E Switch Chassis	JH345A

Note 7 One of these cables is required when ordering this power supply:

HPE FlexFabric 12902E 48V 15m DC Power Supply Unit Cable	JQ058A

Remarks Localization is not required on the internal JF429A HPE 12500 2000W AC Power Supply AC power supplies. Localization is covered on the chassis.

Configuration

Drop down under chassis should offer the following options and results:
Switch/Router/Power Supply to PDU Power Cord - #B2B in North America, 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)
High Volt Switch/Router/Power Supply to Wall Power Cord - #B2E Option. (Offered only in North America, Mexico, Taiwan, and Japan)

Switch Enclosure Options

Mounting Kit

HPE FlexFabric 12900E Chassis Universal Rack Mount Kit — JQ059A
See Configuration
NOTE: 1

HPE FlexFabric 7910 Bottom Support Rails — JH042A
See Configuration
NOTE: 2

Configuration Rules

Note 1 If one of the following 4, 8 or 16 Slot Chassis are selected, then Default Qty 1:

HPE FlexFabric 12904E Switch Chassis	JH262A
HPE FlexFabric 12908E Switch Chassis	JH255A
HPE FlexFabric 12916 Switch AC Chassis	JG632A
HPE FlexFabric 12904E Switch Chassis	JH262A

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Note 2 If one of the following 1 or 2 Slot Chassis are selected, then Default Qty 1:

HPE FlexFabric 12901E Switch Chassis	JH951A
HPE FlexFabric 12902E Switch Chassis	JH345A

Fans

12904E, 12908E, and 12916E (std 0 // max 2) User Selection (min 2 // max 2) per switch enclosure
12902E (std 0 // max 2) User Selection (min 2 // max 2) per switch enclosure
12901E (std 0 // max 3) User Selection (min 2 // max 3) per switch enclosure

HPE FlexFabric 12910 Spare Fan Assembly — JG631A
Remarks: Spare only; Included in Chassis - Supported on JG619A, JH113A

HPE FlexFabric 12916E Fan Tray Assembly — JH106A
- Supported on JH103A

HPE FlexFabric 12908E Fan Tray Assembly — JH258A
- Supported on JH255A

HPE FlexFabric 12904E Fan Tray Assembly — JH265A
- Supported on JH262A

HPE FlexFabric 12902E High Speed Fan Tray Assembly — JH447A

Configuration

- Supported on JH345A

HPE FlexFabric 12916E Spare High Speed Fan Tray Assembly JH423A
- Supported on JH103A

HPE FlexFabric 12908E Spare High Speed Fan Tray Assembly JH424A
- Supported on JH255A

HPE FlexFabric 12904E High Speed Fan Tray Assembly JH448A
- Supported on JH262A

HPE FlexFabric 12901E Fan Tray Assembly JH952A
- Supported on JH951A

Power Supply Cables
(std 0 // max 1) User Selection (min 1 // max 1) per DC Power Supply

HPE FlexFabric 12900E 48V 3m DC Power Supply Unit Cable JQ232A

HPE FlexFabric 12902E 48V 15m DC Power Supply Unit Cable JQ058A

Technical Specifications

HPE FlexFabric 12916E Switch Chassis (JH103A)

I/O ports and slots	16 I/O module slots Supports a maximum of 768 10GbE ports or 768 1/10GBASE-T ports or 768 1/10GbE ports or 768 Gigabit Ethernet ports or 768 autosensing 10/100/1000 ports or 768 40GbE ports or 576 100GbE ports, or a combination	
Additional ports and slots	2 MPU (for management modules) slots 6 switch fabric slots	
Power supplies	16 power supply slots 1 minimum power supply required (ordered separately)	
Fan tray	2 fan tray slots Fan trays are not included.	
Physical characteristics	**Dimensions**	17.32(w) x 33.74(d) x 36.65(h) in (43.99 x 85.7 x 93.1 cm) (21U height)
	Weight	189.82 lb (86.1 kg)
Memory and processor	**Management module**	Quad Core MIPS64 @ 1.2 GHz, 1 GB flash, 8 GB DDR2 SDRAM
Mounting and enclosure	Mounts in an EIA standard 19-inch rack or other equipment cabinet (hardware included); Horizontal surface mounting only	
Performance	**Throughput**	up to 92.1 Bpps (64-byte packets)
	Switching capacity	184 Tbps
Reliability	**Availability**	99.999%
Environment	**Operating temperature**	32°F to 104°F (0°C to 40°C)
	Operating relative humidity	5% to 95%, noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Nonoperating/Storage relative humidity	5% to 95%, noncondensing
	Altitude	up to 13,123 ft (4 km)
	Acoustic	Low-speed fan: 67.8 dB, High-speed fan: 91.2 dB; ISO 7779
	Airflow direction	Front-to-back
Electrical characteristics	**Frequency**	50/60 Hz
	Voltage	100 - 240 VAC, rated -48 to -60 VDC, rated (depending on power supply chosen)
	Current	16 A
	Power output	2400 W
	Frequency	50/60 Hz
	Notes	Based on a common power supply of 2,400 W (AC)
Safety	UL 60950-1 CAN/CSA 22.2 No. 60950-1 IEC 60950-1 EN 60950-1 FDA 21 CFR Subchapter J AS/NZS 60950-1 RoHS Compliance EN 50581	
Emissions	VCCI Class A; EN 55022 Class A; CISPR 22 Class A; IEC/EN 61000-3-2; IEC/EN 61000-3-3; ICES-003 Class A; AS/NZS CISPR 22 Class A; FCC (CFR 47, Part 15) Class A; ETSI EN 300 386	

Technical Specifications

Immunity	**Generic**	EN 55024
Management	IMC - Intelligent Management Center; Command-line interface; Out-of-band management (serial RS-232c); SNMP manager; Telnet; Terminal interface (serial RS-232c); Modem interface; IEEE 802.3 Ethernet mib; Ethernet interface mib	
Services	Refer to the Hewlett Packard Enterprise website at: **https://h10145.www1.hpe.com/support/SupportLookUp.aspx** 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 FlexFabric 12908E Switch Chassis (JH255A)

I/O ports and slots	8 I/O module slots Supports a maximum of 384 10GbE ports or 384 1/10GBASE-T ports or 384 1/10GbE ports or 384 Gigabit Ethernet ports or 384 autosensing 10/100/1000 ports or 288 40GbE ports or 64 100GbE ports, or a combination	
Additional ports and slots	2 MPU (for management modules) slots 6 switch fabric slots	
Power supplies	8 power supply slots 1 minimum power supply required (ordered separately)	
Fan tray	2 fan tray slots Fan trays are not included.	
Physical characteristics	**Dimensions**	17.32(w) x 33.74(d) x 20.91(h) in (43.99 x 85.7 x 53.1 cm) (12U height)
	Weight	103.62 lb (47 kg)
Memory and processor	**Management module**	Quad Core MIPS64 @ 1.2 GHz, 1 GB flash, 8 GB DDR3 SDRAM
Mounting and enclosure	Mounts in an EIA standard 19-inch rack or other equipment cabinet (hardware included); Horizontal surface mounting only	
Performance	**Throughput**	up to 28.8 Bpps (64-byte packets)
	Switching capacity	57.6 Tbps
Reliability	**Availability**	99.999%
Environment	**Operating temperature**	32°F to 104°F (0°C to 40°C)
	Operating relative humidity	5% to 95%, noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Nonoperating/Storage relative humidity	5% to 95%, noncondensing
	Altitude	up to 13,123 ft (4 km)
	Acoustic	Low-speed fan: 62.1 dB, High-speed fan: 87.6 dB; ISO 7779
	Airflow direction	Front-to-back
Electrical characteristics	**Frequency**	50/60 Hz
	Voltage	100 - 240 VAC, rated -48 to -60 VDC, rated (depending on power supply chosen)
	Current	16 A
	Power output	2400 W
	Notes	Based on a common power supply of 2,400 W (AC)
Safety	UL 60950-1; CAN/CSA 22.2 No. 60950-1; IEC 60950-1; EN 60950-1; FDA 21 CFR Subchapter J; AS/NZS 60950-1; RoHS Compliance EN 50581	

Technical Specifications

Emissions	VCCI Class A; EN 55022 Class A; CISPR 22 Class A; IEC/EN 61000-3-2; IEC/EN 61000-3-3; ICES-003 Class A; AS/NZS CISPR 22 Class A; FCC (CFR 47, Part 15) Class A; ETSI EN 300 386	
Immunity	**Generic**	EN 55024
Management	IMC - Intelligent Management Center; Command-line interface; Out-of-band management (serial RS-232c); SNMP manager; Telnet; Terminal interface (serial RS-232c); Modem interface; IEEE 802.3 Ethernet mib; Ethernet interface mib	
Services	Refer to the Hewlett Packard Enterprise website at: **http://www.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 FlexFabric 12904E Switch Chassis (JH262A)

I/O ports and slots	4 I/O module slots Supports a maximum of 192 10GbE ports or 192 1/10GBASE-T ports or 192 1/10GbE ports or 192 Gigabit Ethernet ports or 192 autosensing 10/100/1000 ports or 144 40GbE ports or 32 100GbE ports, or a combination	
Additional ports and slots	2 MPU (for management modules) slots 6 switch fabric slots	
Power supplies	4 power supply slots 1 minimum power supply required (ordered separately)	
Fan tray	2 fan tray slots Fan trays are not included.	
Physical characteristics	**Dimensions**	17.32(w) x 33.74(d) x 10.39(h) in (43.99 x 85.7 x 26.39 cm) (6U height)
	Weight	79.37 lb (36 kg)
Memory and processor	**Management module**	Quad Core MIPS64 @ 1.2 GHz, 1 GB flash, 8 GB DDR3 SDRAM
Mounting and enclosure	Mounts in an EIA standard 19-inch rack or other equipment cabinet (hardware included); Horizontal surface mounting only	
Performance	**Throughput**	up to 14.4 Bpps (64-byte packets)
	Switching capacity	28.8 Tbps
Reliability	**Availability**	99.999%
Environment	**Operating temperature**	32°F to 104°F (0°C to 40°C)
	Operating relative humidity	5% to 95%, noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Nonoperating/Storage relative humidity	5% to 95%, noncondensing
	Altitude	up to 13,123 ft (4 km)
	Acoustic	Low-speed fan: 67.5 dB, High-speed fan: 85.3 dB; ISO 7779
	Airflow direction	Front-to-back
Electrical characteristics	**Frequency**	50/60 Hz
	Voltage	100 - 240 VAC, rated -48 to -60 VDC, rated (depending on power supply chosen)
	Current	16 A
	Power output	2400 W
	Notes	Based on a common power supply of 2,400 W (AC)

Technical Specifications

Safety	UL 60950-1; CAN/CSA 22.2 No. 60950-1; IEC 60950-1; EN 60950-1; FDA 21 CFR Subchapter J; AS/NZS 60950-1; RoHS Compliance EN 50581	
Emissions	VCCI Class A; EN 55022 Class A; CISPR 22 Class A; IEC/EN 61000-3-2; IEC/EN 61000-3-3; ICES-003 Class A; AS/NZS CISPR 22 Class A; FCC (CFR 47, Part 15) Class A; ETSI EN 300 386	
Immunity	**Generic**	EN 55024
Management	IMC - Intelligent Management Center; Command-line interface; Out-of-band management (serial RS-232c); SNMP manager; Telnet; Terminal interface (serial RS-232c); Modem interface; IEEE 802.3 Ethernet mib; Ethernet interface mib	
Services	Refer to the Hewlett Packard Enterprise website at: **https://h10145.www1.hpe.com/support/SupportLookUp.aspx** 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 FlexFabric 12902E Switch Chassis (JH345A)

I/O ports and slots	2 I/O module slots Supports a maximum of 48 1/10GBASE-T ports or 96 1/10GbE ports or 96 40GbE ports or 96 100GbE ports or a combination	
Additional ports and slots	2 MPU (for management modules) slots	
Power supplies	4 power supply slots 1 minimum power supply required (ordered separately)	
Fan tray	2 fan tray slots Fan trays are not included	
Physical characteristics	**Dimensions**	17.32(w) x 35.24(d) x 5.24(h) in. (44.0 x 89.5 x 13.3 cm) (3U height)
	Weight	52.91 lb (24 kg)
Memory and processor	**Management module**	Quad Core MIPS64 @ 1 GHz, 1 GB flash, 8 GB DDR3 SDRAM
Mounting and enclosure	Mounts in an EIA standard 19-inch rack or other equipment cabinet (hardware included); horizontal surface mounting only	
Performance	**Throughput**	Up to 11.52 Bpps (64-byte packets)
	Switching capacity	19.2 Tbps
Reliability	**Availability**	99.999%
Environment	**Operating temperature**	32°F to 104°F (0°C to 40°C)
	Operating relative humidity	5% to 95%, noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Nonoperating/Storage relative humidity	5% to 95%, noncondensing
	Altitude	Up to 13,123 ft (4 km)
	Acoustic	Low-speed fan: 73.1 dB, high-speed fan: 87.2 dB; ISO 7779
	Airflow direction	Front-to-back
Electrical characteristics	**Frequency**	50/60 Hz
	Voltage	100–240 VAC, rated -48 to -60 VDC, rated (depending on power supply chosen)
	Current	13 A
	Power output	1800 W

Technical Specifications

	Notes	Based on a common power supply of 1,800 W (AC/DC)
Safety	UL 60950-1; CAN/CSA 22.2 No. 60950-1; IEC 60950-1; EN 60950-1; FDA 21 CFR Subchapter J; AS/NZS 60950-1; RoHS Compliance EN 50581	
Emissions	VCCI Class A; EN 55022 Class A; CISPR 22 Class A; IEC/EN 61000-3-2; IEC/EN 61000-3-3; ICES-003 Class A; AS/NZS CISPR 22 Class A; FCC (CFR 47, Part 15) Class A; ETSI EN 300 386	
Immunity	**Generic**	EN 55024
Management	IMC—Intelligent Management Center; command-line interface; Out-of-band management (serial RS-232c); SNMP manager; Telnet; terminal interface (serial RS-232c); modem interface; IEEE 802.3 Ethernet MIB; Ethernet interface MIB	
Services	Refer to the Hewlett Packard Enterprise website at: **https://h10145.www1.hpe.com/support/SupportLookUp.aspx** 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 FlexFabric 12901E Switch Chassis (JH951A)

I/O ports and slots	1 I/O module slots Supports a maximum of 48 100GbE, 40GbE or 10GbE ports or a combination	
Additional ports and slots	MPU (for management) modules integrated	
Power supplies	2 power supply slots 1 minimum power supply required (ordered separately)	
Fan tray	3 fan tray slots Fan trays are not included	
Physical characteristics	**Dimensions**	17.32(w) x 33.7(d) x 3.4(h) in. (44.0 x 85.6 x 8.8 cm) (2U height)
	Weight	77.16. lb (35 kg)
Memory and processor	**Management module**	Quad Core MIPS64 @ 1.2GHz, 1 GB flash, 16 GB DDR3 SDRAM
Mounting and enclosure	Mounts in an EIA standard 19-inch rack or other equipment cabinet (hardware included); horizontal surface mounting only	
Performance	**Throughput**	Up to 5.76 Bpps (64-byte packets)
	Switching capacity	9.6 Tbps
Reliability	**Availability**	99.999%
Environment	**Operating temperature**	32°F to 104°F (0°C to 40°C)
	Operating relative humidity	5% to 95%, noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Nonoperating/Storage relative humidity	5% to 95%, noncondensing
	Altitude	Up to 13,123 ft (4 km)
	Acoustic	Low-speed fan: 64.8 dB, high-speed fan: 82.4 dB; ISO 7779
	Airflow direction	Front-to-back
Electrical characteristics	**Frequency**	50/60 Hz
	Voltage	100–240 VAC, rated -48 to -60 VDC, rated (depending on power supply chosen)
	Current	16 A

Technical Specifications

	Power output	2400 W
	Notes	Based on a common power supply of 2,400 W (AC/DC)
Safety	UL 60950-1; CAN/CSA 22.2 No. 60950-1; IEC 60950-1; EN 60950-1; FDA 21 CFR Subchapter J; AS/NZS 60950-1; RoHS Compliance EN 50581	
Emissions	VCCI Class A; EN 55022 Class A; CISPR 22 Class A; IEC/EN 61000-3-2; IEC/EN 61000-3-3; ICES-003 Class A; AS/NZS CISPR 22 Class A; FCC (CFR 47, Part 15) Class A; ETSI EN 300 386	
Immunity	**Generic**	EN 55024
Management	IMC—Intelligent Management Center; command-line interface; Out-of-band management (serial RS-232c); SNMP manager; Telnet; terminal interface (serial RS-232c); modem interface; IEEE 802.3 Ethernet MIB; Ethernet interface MIB	
Services	Refer to the Hewlett Packard Enterprise website at: **https://h10145.www1.hpe.com/support/SupportLookUp.aspx** 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 FlexFabric 12910 Switch AC Chassis (JG619A)

I/O ports and slots	10 I/O module slots Supports a maximum of 480 10GbE ports or 480 1/10GBASE-T ports or 480 1/10GbE ports or 480 Gigabit Ethernet ports or 480 autosensing 10/100/1000 ports or 360 40GbE ports or 80 100GbE ports, or a combination	
Additional ports and slots	2 MPU (for management modules) slots 6 switch fabric	
Power supplies	8 power supply slots 1 minimum power supply required (ordered separately)	
Fan tray	includes: 2 x JG631A 2 fan tray slots	
Physical characteristics	**Dimensions**	17.32(w) x 32.68(d) x 36.61(h) in (43.99 x 83 x 92.99 cm) (21U height)
	Weight	187.46 lb (85.03 kg)
	Full configuration weight	474.45 lb (215.21 kg)
Memory and processor	**Management module**	Quad Core MIPS64 @ 1.2 GHz, 1 GB flash, 8 GB DDR2 SDRAM
Mounting and enclosure	Mounts in an EIA standard 19-inch rack or other equipment cabinet (hardware included); Horizontal surface mounting only	
Performance	**Throughput**	up to 36 Bpps (64-byte packets)
	Switching capacity	28.8 Tbps
Reliability	**Availability**	99.999%
Environment	**Operating temperature**	32°F to 113°F (0°C to 45°C)
	Operating relative humidity	10% to 95%, noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Nonoperating/Storage relative humidity	5% to 95%, noncondensing
	Altitude	up to 13,123 ft (4 km)
	Acoustic	Low-speed fan: 60.2 dB, High-speed fan: 83.9 dB
	Airflow direction	Front-to-back
Electrical characteristics	**Frequency**	50/60 Hz
	Voltage	100 - 120 / 200 - 240 VAC, rated

Technical Specifications

	Current	16/60 A
	Power output	2000 W
	Notes	Based on a common power supply of 2,000 W (AC)
Safety	UL 60950-1; CAN/CSA 22.2 No. 60950-1; IEC 60950-1; EN 60950-1; FDA 21 CFR Subchapter J; AS/NZS 60950-1; RoHS Compliance EN 50581	
Emissions	VCCI Class A EN 55022 Class A CISPR 22 Class A IEC/EN 61000-3-2 IEC/EN 61000-3-3 ICES-003 Class A AS/NZS CISPR 22 Class A FCC (CFR 47, Part 15) Class A ETSI EN 300 386	
Immunity	**Generic**	EN 55024
Management	IMC - Intelligent Management Center; command-line interface; out-of-band management (serial RS-232C); SNMP Manager; Telnet; terminal interface (serial RS-232C); modem interface; IEEE 802.3 Ethernet MIB; Ethernet Interface MIB	
Services	Refer to the Hewlett Packard Enterprise website at: **https://h10145.www1.hpe.com/support/SupportLookUp.aspx** 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)

BGP

RFC 1771 BGPv4
RFC 1772 Application of the BGP
RFC 1997 BGP Communities Attribute
RFC 1998 An Application of the BGP Community Attribute in Multi-home Routing
RFC 2385 BGP Session Protection via TCP MD5
RFC 2439 BGP Route Flap Damping
RFC 2796 BGP Route Reflection
RFC 2858 BGP-4 Multi-Protocol Extensions
RFC 2918 Route Refresh Capability
RFC 3065 Autonomous System Confederations for BGP
RFC 3392 Capabilities Advertisement with BGP-4
RFC 4271 A Border Gateway Protocol 4 (BGP-4)
RFC 4272 BGP Security Vulnerabilities Analysis
RFC 4273 Definitions of Managed Objects for BGP-4
RFC 4274 BGP-4 Protocol Analysis
RFC 4275 BGP-4 MIB Implementation Survey
RFC 4276 BGP-4 Implementation Report
RFC 4277 Experience with the BGP-4 Protocol
RFC 4360 BGP Extended Communities Attribute
RFC 4456 BGP Route Reflection: An Alternative to Full Mesh Internal BGP (IBGP)
RFC 5291 Outbound Route Filtering Capability for BGP-4
RFC 5292 Address-Prefix-Based Outbound Route Filter for BGP-4

Denial of service protection

RFC 3307 IPv6 Multicast Address Allocation
RFC 3315 DHCPv6 (client and relay)
RFC 3484 Default Address Selection for IPv6
RFC 3513 IPv6 Addressing Architecture
RFC 3736 Stateless Dynamic Host Configuration Protocol (DHCP) Service for IPv6
RFC 3810 MLDv2 for IPv6
RFC 4214 Intra-Site Automatic Tunnel Addressing Protocol (ISATAP)
RFC 4861 IPv6 Neighbor Discovery
RFC 4862 IPv6 Stateless Address Auto-configuration

MIBs

RFC 1156 (TCP/IP MIB)
RFC 1157 A Simple Network Management Protocol (SNMP)
RFC 1215 A Convention for Defining Traps for use with the SNMP
RFC 1229 Interface MIB Extensions
RFC 1493 Bridge MIB
RFC 1573 SNMP MIB II
RFC 1643 Ethernet MIB
RFC 1657 BGP-4 MIB
RFC 1724 RIPv2 MIB
RFC 1907 SNMPv2 MIB
RFC 2011 SNMPv2 MIB for IP
RFC 2012 SNMPv2 MIB for TCP
RFC 2013 SNMPv2 MIB for UDP
RFC 2096 IP Forwarding Table MIB
RFC 2233 Interface MIB

Technical Specifications

Automatic filtering of well-known denial-of-service packets
CPU DoS Protection
Rate Limiting by ACLs

Device management
RFC 1157 SNMPv1/v2c
RFC 1305 NTPv3
RFC 1902 (SNMPv2)
RFC 2579 (SMIv2 Text Conventions)
RFC 2580 (SMIv2 Conformance)
RFC 2819 (RMON groups Alarm, Event, History and Statistics only)
HTTP, SSHv1, and Telnet
Multiple Configuration Files
Multiple Software Images
SSHv1/SSHv2 Secure Shell
TACACS/TACACS+
Web UI

General protocols
IEEE 802.1ad Q-in-Q
IEEE 802.1ag Service Layer OAM
IEEE 802.1p Priority
IEEE 802.1Q VLANs
IEEE 802.1s Multiple Spanning Trees
IEEE 802.1w Rapid Reconfiguration of Spanning Tree
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 802.3ah Ethernet in First Mile over Point to Point Fiber – EFMF
IEEE 802.3ba 40 and 100 Gigabit Ethernet Architecture
IEEE 802.3x Flow Control
IEEE 802.3z 1000BASE-X
RFC 768 UDP
RFC 783 TFTP Protocol (revision 2)
RFC 791 IP
RFC 792 ICMP
RFC 793 TCP
RFC 826 ARP
RFC 854 TELNET
RFC 894 IP over Ethernet
RFC 925 Multi-LAN Address Resolution
RFC 950 Internet Standard Subnetting Procedure
RFC 959 File Transfer Protocol (FTP)
RFC 1027 Proxy ARP
RFC 1035 Domain Implementation and Specification
RFC 1042 IP Datagrams
RFC 1058 RIPv1
RFC 1142 OSI IS-IS Intra-domain Routing Protocol
RFC 2452 IPV6-TCP-MIB
RFC 2454 IPV6-UDP-MIB
RFC 2465 IPv6 MIB
RFC 2466 ICMPv6 MIB
RFC 2571 SNMP Framework MIB
RFC 2572 SNMP-MPD MIB
RFC 2573 SNMP-Notification MIB
RFC 2573 SNMP-Target MIB
RFC 2578 Structure of Management Information Version 2 (SMIv2)
RFC 2580 Conformance Statements for SMIv2
RFC 2618 RADIUS Client MIB
RFC 2620 RADIUS Accounting MIB
RFC 2665 Ethernet-Like-MIB
RFC 2668 802.3 MAU MIB
RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
RFC 2787 VRRP MIB
RFC 2819 RMON MIB
RFC 2925 Ping MIB
RFC 2932IP (Multicast Routing MIB)
RFC 2933 IGMP MIB
RFC 2934 Protocol Independent Multicast MIB for IPv4
RFC 3414 SNMP-User based-SM MIB
RFC 3415 SNMP-View based-ACM MIB
RFC 3417 Simple Network Management Protocol (SNMP) over IEEE 802 Networks
RFC 3418 MIB for SNMPv3
RFC 3595 Textual Conventions for IPv6 Flow Label
RFC 3621 Power Ethernet MIB
RFC 3813 MPLS LSR MIB
RFC 3814 MPLS FTN MIB
RFC 3815 MPLS LDP MIB
RFC 3826 AES for SNMP's USM MIB
RFC 4133 Entity MIB (Version 3)
RFC 4444 Management Information Base for Intermediate System to Intermediate System (IS-IS)

MPLS
RFC 2205 Resource ReSerVation Protocol
RFC 2209 Resource ReSerVation Protocol (RSVP)
RFC 2702 Requirements for Traffic Engineering Over MPLS
RFC 2858 Multiprotocol Extensions for BGP-4
RFC 2961 RSVP Refresh Overhead Reduction Extensions
RFC 3031 Multiprotocol Label Switching Architecture
RFC 3032 MPLS Label Stack Encoding
RFC 3107 Carrying Label Information in BGP-4
RFC 3212 Constraint-Based LSP Setup using LDP
RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)
RFC 3487 Graceful Restart Mechanism for LDP

Technical Specifications

RFC 1195 OSI ISIS for IP and Dual Environments
RFC 1213 Management Information Base for Network Management of TCP/IP-based internets
RFC 1293 Inverse Address Resolution Protocol
RFC 1305 NTPv3
RFC 1350 TFTP Protocol (revision 2)
RFC 1393 Traceroute Using an IP Option
RFC 1519 CIDR
RFC 1531 Dynamic Host Configuration Protocol
RFC 1533 DHCP Options and BOOTP Vendor Extensions
RFC 1591 DNS (client only)
RFC 1624 Incremental Internet Checksum
RFC 1701 Generic Routing Encapsulation
RFC 1721 RIP-2 Analysis
RFC 1723 RIP v2
RFC 1812 IPv4 Routing
RFC 2082 RIP-2 MD5 Authentication
RFC 2091 Trigger RIP
RFC 2131 DHCP
RFC 2138 Remote Authentication Dial In User Service (RADIUS)
RFC 2236 IGMP Snooping
RFC 2338 VRRP
RFC 2453 RIPv2
RFC 2644 Directed Broadcast Control
RFC 2763 Dynamic Name-to-System ID mapping support
RFC 2784 Generic Routing Encapsulation (GRE)
RFC 2865 Remote Authentication Dial In User Service (RADIUS)
RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS
RFC 2973 IS-IS Mesh Groups
RFC 3022 Traditional IP Network Address Translator (Traditional NAT)
RFC 3277 IS-IS Transient Blackhole Avoidance
RFC 3567 Intermediate System to Intermediate System (IS-IS) Cryptographic Authentication
RFC 3719 Recommendations for Interoperable Networks using Intermediate System to Intermediate System (IS-IS)
RFC 3784 ISIS TE support
RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit
RFC 3787 Recommendations for Interoperable IP Networks using Intermediate System to Intermediate System (IS-IS)
RFC 3847 Restart signaling for IS-IS
RFC 4251 The Secure Shell (SSH) Protocol Architecture
RFC 4486 Subcodes for BGP Cease Notification Message
RFC 4884 Extended ICMP to Support Multi-Part Messages
RFC 4941 Privacy Extensions for Stateless
RFC 3564 Requirements for Support of Differentiated Service-aware MPLS Traffic Engineering
RFC 4364 BGP/MPLS IP Virtual Private Networks (VPNs)
RFC 4379 Detecting Multi-Protocol Label Switched (MPLS) Data Plane Failures
RFC 4447 Pseudowire Setup and Maintenance Using LDP
RFC 4448 Encapsulation Methods for Transport of Ethernet over MPLS Networks
RFC 4664 Framework for Layer 2 Virtual Private Networks
RFC 4665 Service Requirements for Layer 2 Provider Provisioned Virtual Private Networks
RFC 4761 Virtual Private LAN Service (VPLS) Using BGP for Auto-Discovery and Signaling
RFC 4762 Virtual Private LAN Service (VPLS) Using Label Distribution Protocol (LDP) Signaling
RFC 5036 LDP Specification

Network management

IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
RFC 1155 Structure of Management Information
RFC 1157 SNMPv1
RFC 1448 Protocol Operations for version 2 of the Simple Network Management Protocol (SNMPv2)
RFC 2211 Controlled-Load Network
RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events)
RFC 3176 sFlow
RFC 3411 SNMP Management Frameworks
RFC 3412 SNMPv3 Message Processing
RFC 3414 SNMPv3 User-based Security Model (USM)
RFC 3415 SNMPv3 View-based Access Control Model VACM)
ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)

OSPF

RFC 1245 OSPF protocol analysis
RFC 1246 Experience with OSPF
RFC 1765 OSPF Database Overflow
RFC 1850 OSPFv2 Management Information Base (MIB), traps
RFC 2154 OSPF w/ Digital Signatures (Password, MD-5)
RFC 2328 OSPFv2
RFC 2370 OSPF Opaque LSA Option
RFC 3101 OSPF NSSA
RFC 3137 OSPF Stub Router Advertisement
RFC 3623 Graceful OSPF Restart
RFC 3630 Traffic Engineering Extensions to OSPFv2

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Address Autoconfiguration in IPv6
RFC 5130 A Policy Control Mechanism in IS-IS Using Administrative Tags

IP multicast
RFC 2236 IGMPv2
RFC 2283 Multiprotocol Extensions for BGP-4
RFC 2362 PIM Sparse Mode
RFC 3376 IGMPv3
RFC 3446 Anycast Rendezvous Point (RP) mechanism using Protocol Independent Multicast (PIM) and Multicast Source Discovery Protocol (MSDP)
RFC 3973 PIM Dense Mode
RFC 4541 Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches
RFC 4601 PIM Sparse Mode
RFC 4604 Using Internet Group Management Protocol Version 3 (IGMPv3) and Multicast Listener Discovery Protocol Version 2 (MLDv2) for Source-Specific Multicast
RFC 4605 IGMP/MLD Proxying
RFC 4607 Source-Specific Multicast for IP
RFC 5059 Bootstrap Router (BSR) Mechanism for Protocol Independent Multicast (PIM)

IPv6
RFC 1886 DNS Extension for IPv6
RFC 1887 IPv6 Unicast Address Allocation Architecture
RFC 1981 IPv6 Path MTU Discovery
RFC 2080 RIPng for IPv6
RFC 2081 RIPng Protocol Applicability Statement
RFC 2292 Advanced Sockets API for IPv6
RFC 2373 IPv6 Addressing Architecture
RFC 2375 IPv6 Multicast Address Assignments
RFC 2460 IPv6 Specification
RFC 2461 IPv6 Neighbor Discovery
RFC 2462 IPv6 Stateless Address Auto-configuration
RFC 2463 ICMPv6
RFC 2464 Transmission of IPv6 over Ethernet Networks
RFC 2473 Generic Packet Tunneling in IPv6
RFC 2526 Reserved IPv6 Subnet Anycast Addresses
RFC 2529 Transmission of IPv6 Packets over IPv4
RFC 2545 Use of MP-BGP-4 for IPv6
RFC 2553 Basic Socket Interface Extensions for IPv6
RFC 2710 Multicast Listener Discovery (MLD) for IPv6
RFC 2740 OSPFv3 for IPv6
RFC 2767 Dual stacks IPv46 & IPv6
RFC 2893 Transition Mechanisms for IPv6 Hosts
RFC 4061 Benchmarking Basic OSPF Single Router Control Plane Convergence
RFC 4062 OSPF Benchmarking Terminology and Concepts
RFC 4063 Considerations When Using Basic OSPF Convergence Benchmarks
RFC 4222 Prioritized Treatment of Specific OSPF Version 2 Packets and Congestion Avoidance
RFC 4577 OSPF as the Provider/Customer Edge Protocol for BGP/MPLS IP Virtual Private Networks (VPNs)
RFC 4811 OSPF Out-of-Band LSDB Resynchronization
RFC 4812 OSPF Restart Signaling
RFC 4813 OSPF Link-Local Signaling
RFC 4940 IANA Considerations for OSPF

QoS/CoS
IEEE 802.1p (CoS)
RFC 1349 Type of Service in the Internet Protocol Suite
RFC 2211 Specification of the Controlled-Load Network Element Service
RFC 2212 Guaranteed Quality of Service
RFC 2474 DSCP DiffServ
RFC 2475 DiffServ Architecture
RFC 2597 DiffServ Assured Forwarding (AF)
RFC 2598 DiffServ Expedited Forwarding (EF)

Security
RFC 1321 The MD5 Message-Digest Algorithm
RFC 1334 PPP Authentication Protocols (PAP)
RFC 1492 TACACS+
RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)RFC 2082 RIP-2 MD5 Authentication
RFC 2104 Keyed-Hashing for Message Authentication
RFC 2408 Internet Security Association and Key Management Protocol (ISAKMP)
RFC 2409 The Internet Key Exchange (IKE)
RFC 2716 PPP EAP TLS Authentication Protocol
RFC 2865 RADIUS Authentication
RFC 2866 RADIUS Accounting
RFC 2868 RADIUS Attributes for Tunnel Protocol Support
RFC 2869 RADIUS Extensions
Access Control Lists (ACLs)
Port Security
SSHv1/SSHv2 Secure Shell

VPN
RFC 2403 - HMAC-MD5-96
RFC 2404 - HMAC-SHA1-96
RFC 2405 - DES-CBC Cipher algorithm
RFC 2407 - Domain of interpretation

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and Routers
RFC 3056 Connection of IPv6 Domains via IPv4 Clouds

RFC 2547 BGP/MPLS VPNs
RFC 2917 A Core MPLS IP VPN Architecture
RFC 4302 - IP Authentication Header (AH)
RFC 4303 - IP Encapsulating Security Payload (ESP)

Accessories

HPE FlexFabric 12900E Switch Series accessories

Modules

HPE FlexFabric 12900 48-port 1/10GbE SFP+ FE Module	JH249A
HPE FlexFabric 12900 24-port 40GbE QSFP+ FE Module	JH250A
HPE FlexFabric 12900 48-port 1/10GBASE-T FX Module	JH007A
HPE FlexFabric 12900 48-port 1/10GbE SFP+ FX Module	JG888B
HPE FlexFabric 12900 36-port 40GbE QSFP+ FX Module	JH045A
HPE FlexFabric 12900 24-port 40GbE QSFP+ FX Module	JG889B
HPE FlexFabric 12900 12-port 40GbE QSFP+ FX Module	JH005A
HPE FlexFabric 12900 8-port 100GbE CFP2 FX Module	JH288A
HPE FlexFabric 12900 8-port 100GbE CXP FX Module	JH006A
HPE FlexFabric 12900 48-port 10/100/1000BASE-T FX Module	JH242A
HPE FlexFabric 12900 48-port GbE SFP FX Module	JH241A
HPE FlexFabric 12900 48-port 1/10GbE SFP+ EC Module	JG626A
HPE FlexFabric 12900 12-port 40GbE QSFP+ EC Module	JG857A
HPE FlexFabric 12900 4-port 100GbE CFP EC Module	JG858A
HPE FlexFabric 12900 48-port GbE SFP EB Module	JG855A
HPE FlexFabric 12900 48-port 10/100/1000BASE-T EB Module	JG856A
HPE FlexFabric 12900 48-port 10GbE SFP+ EA Module	JG624A
HPE FlexFabric 12900 16-port 40GbE QSFP+ EA Module	JG625A

Mounting kit

HPE FlexFabric 12900E Chassis Universal Rack Mount Kit	JQ059A

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 X125 1G SFP LC LH40 1310nm Transceiver	JD061A
HPE X120 1G SFP LC LH40 1550nm Transceiver	JD062A
HPE X125 1G SFP LC LH70 Transceiver	JD063B
HPE X120 1G SFP LC LH100 Transceiver	JD103A
HPE X120 1G SFP LC BX 10-D Transceiver	JD099B
HPE X120 1G SFP LC BX 10-U Transceiver	JD098B
HPE X130 10G SFP+ LC SR Transceiver	JD092B
HPE X130 10G SFP+ LC SR Data Center Transceiver	JL437A
HPE X130 10G SFP+ LC LRM Transceiver	JD093B
HPE X130 10G SFP+ LC LRM Data Center Transceiver	JL438A
HPE X130 10G SFP+ LC LR Transceiver	JD094B
HPE X130 10G SFP+ LC LR Data Center Transceiver	JL439A
HPE X130 10G SFP+ LC ER 40km Transceiver	JG234A
HPE X130 10G SFP+ LC LH 80km Transceiver	JG915A
HPE FlexNetwork X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JD096C
HPE FlexNetwork X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD097C
HPE FlexNetwork X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable	JG081C
HPE FlexNetwork X240 10G SFP+ SFP+ 7m Direct Attach Copper Cable	JC784C
HPE X140 40G QSFP+ LC LR4 SM 10km 1310nm Transceiver	JG661A

Accessories

HPE X140 40G QSFP+ MPO MM 850nm CSR4 300m Transceiver	JG709A
HPE X140 40G QSFP+ MPO SR4 Transceiver	JG325B
HPE X140 40G QSFP+ LC BiDi 100m MM Transceiver	JL251A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 1m Direct Attach Copper Cable	JG326A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 3m Direct Attach Copper Cable	JG327A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 5m Direct Attach Copper Cable	JG328A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 1m Direct Attach Copper Splitter Cable	JG329A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 3m Direct Attach Copper Splitter Cable	JG330A
HPE FlexNetwork X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable	JD095C
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 5m Direct Attach Copper Splitter Cable	JG331A
HPE X150 100G CXP MPO SR 100m Multimode Transceiver	JG881A
HP X150 100G CFP LC LR4 10km SM Transceiver	JG829A
HPE X150 100G CFP2 LC LR4 10km SM Transceiver	JH289A
HPE X150 100G QSFP28 LC SWDM4 100m MM Transceiver	JH419A
HPE X2A0 100G CXP CXP 10m Active Optical Cable	JG882A
HPE X2A0 100G CXP CXP 30m Active Optical Cable	JG883A
HPE X2A0 40G QSFP+ to QSFP+ 7m Active Optical Cable	JL287A
HPE X2A0 40G QSFP+ to QSFP+ 10m Active Optical Cable	JL288A
HPE X2A0 40G QSFP+ to QSFP+ 20m Active Optical Cable	JL289A
HPE X2A0 10G SFP+ to SFP+ 7m Active Optical Cable	JL290A
HPE X2A0 10G SFP+ to SFP+ 10m Active Optical Cable	JL291A
HPE X2A0 10G SFP+ to SFP+ 20m Active Optical Cable	JL292A
HPE X140 40G QSFP+ LC LR4L 2km SM Transceiver	JL286A

HPE FlexFabric 12916E Switch Chassis (JH103A)

HPE FlexFabric 12900E v2 Main Processing Unit	JH669A
HPE FlexFabric 12916E 21.6Tbps Type H Fabric Module	JH361A
HPE FlexFabric 12916E 10.0Tbps Type F Fabric Module	JH252A
HPE FlexFabric 12916E 43.2Tbps Type H Fabric Module	JH435A
HPE FlexFabric 12900E 36-port 100GbE QSFP28 HB Module	JH357A
HPE FlexFabric 12900E 18-port 100G QSFP28/18-port 40G QSFP+ HB Module	JH422A
HPE FlexFabric 12900E 18-port 100G QSFP28/18-port 40G QSFP+ HF Module	JH425A
HPE FlexFabric 12900E 48-port 40GbE QSFP+ HB Module	JH359A
HPE FlexFabric 12900E 48-port 1/10GbE SFP+ 2-port 100GbE QSFP28 HB Module	JH360A
HPE FlexFabric 12900E 24p 10G/2p 40G HB 59xx Slot Module	JH953A
HPE FlexFabric 12900E 24-port 10GbE and 4-port 100GbE HD 59xx Slot Module	JH954A
HPE FlexFabric 12900E 48-port 10GbE SFP+ HF Module	JQ061A
HPE X240 100G QSFP28 to QSFP28 1m Direct Attach Copper Cable	JL271A
HPE X240 100G QSFP28 to QSFP28 3m Direct Attach Copper Cable	JL272A
HPE X240 100G QSFP28 to QSFP28 5m Direct Attach Copper Cable	JL273A
HPE X150 100G QSFP28 MPO SR4 100m MM Transceiver	JL274A
HPE X150 100G QSFP28 LC LR4 10km SM Transceiver	JL275A
HPE X150 100G QSFP28 MPO PSM4 500m SM Transceiver	JH420A
HPE X150 100G QSFP28 CWDM4 2km SM Transceiver	JH673A
HPE X2A0 100G QSFP28 to QSFP28 7m Active Optical Cable	JL276A
HPE X2A0 100G QSFP28 to QSFP28 10m Active Optical Cable	JL277A
HPE X2A0 100G QSFP28 to QSFP28 20m Active Optical Cable	JL278A
HPE X240 QSFP28 4xSFP28 1m Direct Attach Copper Cable	JL282A
HPE X240 QSFP28 4xSFP28 3m Direct Attach Copper Cable	JL283A
HPE X240 QSFP28 4xSFP28 5m Direct Attach Copper Cable	JL284A

Accessories

HPE FlexFabric 12900E 3000W AC Power Supply Unit	JH348A
HPE FlexFabric 12900E 2400W AC Power Supply Unit	JH108A
HPE FlexFabric 12900E 2400W DC Power Supply Unit	JH269A
HPE FlexFabric 12900E 48V 3m DC Power Supply Unit Cable	JQ232A
HPE FlexFabric 12916E Spare High Speed Fan Tray Assembly	JH423A
HPE FlexFabric 12900E LPU Adapter	JH107A

HPE FlexFabric 12908E Switch Chassis (JH255A)

HPE FlexFabric 12900E v2 Main Processing Unit	JH669A
HPE FlexFabric 12908E 14.4Tbps Type H Fabric Module	JH362A
HPE FlexFabric 12908E 5.0Tbps Type F Fabric Module	JH257A
HPE FlexFabric 12900E 18-port 100G QSFP28/18-port 40G QSFP+ HB Module	JH422A
HPE FlexFabric 12900E 18-port 100G QSFP28/18-port 40G QSFP+ HF Module	JH425A
HPE FlexFabric 12900E 36-port 100GbE QSFP28 HB Module	JH357A
HPE FlexFabric 12900E 48-port 40GbE QSFP+ HB Module	JH359A
HPE FlexFabric 12900E 48-port 1/10GbE SFP+ 2-port 100GbE QSFP28 HB Module	JH360A
HPE FlexFabric 12900E 24p 10G/2p 40G HB 59xx Slot Module	JH953A
HPE FlexFabric 12900E 24-port 10GbE and 4-port 100GbE HD 59xx Slot Module	JH954A
HPE FlexFabric 12900E 48-port 10GbE SFP+ HF Module	JQ061A
HPE X240 100G QSFP28 to QSFP28 1m Direct Attach Copper Cable	JL271A
HPE X240 100G QSFP28 to QSFP28 3m Direct Attach Copper Cable	JL272A
HPE X150 100G QSFP28 MPO SR4 100m MM Transceiver	JL274A
HPE X150 100G QSFP28 LC LR4 10km SM Transceiver	JL275A
HPE X150 100G QSFP28 MPO PSM4 500m SM Transceiver	JH420A
HPE X150 100G QSFP28 CWDM4 2km SM Transceiver	JH673A
HPE X2A0 100G QSFP28 to QSFP28 7m Active Optical Cable	JL276A
HPE X2A0 100G QSFP28 to QSFP28 10m Active Optical Cable	JL277A
HPE X2A0 100G QSFP28 to QSFP28 20m Active Optical Cable	JL278A
HPE X240 100G QSFP28 to QSFP28 5m Direct Attach Copper Cable	JL273A
HPE X240 QSFP28 4xSFP28 1m Direct Attach Copper Cable	JL282A
HPE X240 QSFP28 4xSFP28 3m Direct Attach Copper Cable	JL283A
HPE X240 QSFP28 4xSFP28 5m Direct Attach Copper Cable	JL284A
HPE FlexFabric 12900E 3000W AC Power Supply Unit	JH348A
HPE FlexFabric 12900E 2400W AC Power Supply Unit	JH108A
HPE FlexFabric 12900E 2400W DC Power Supply Unit	JH269A
HPE FlexFabric 12900E 48V 3m DC Power Supply Unit Cable	JQ232A
HPE FlexFabric 12908E Spare High Speed Fan Tray Assembly	JH424A
HPE FlexFabric 12900E LPU Adapter	JH107A

HPE FlexFabric 12904E Switch Chassis (JH262A)

HPE FlexFabric 12904E v2 Main Processing Unit	JH668A
HPE FlexFabric 12904E Main Processing Unit	JH263A
HPE FlexFabric 12904E 7.2Tbps Type H Fabric Module	JH364A
HPE FlexFabric 12904E 2.5Tbps Type F Fabric Module	JH264A
HPE FlexFabric 12900E 36-port 100GbE QSFP28 HB Module	JH357A
HPE FlexFabric 12900E 18-port 100G QSFP28/18-port 40G QSFP+ HB Module	JH422A
HPE FlexFabric 12900E 18-port 100G QSFP28/18-port 40G QSFP+ HF Module	JH425A
HPE FlexFabric 12900E 48-port 40GbE QSFP+ HB Module	JH359A
HPE FlexFabric 12900E 48-port 1/10GbE SFP+ 2-port 100GbE QSFP28 HB Module	JH360A
HPE FlexFabric 12900E 24p 10G/2p 40G HB 59xx Slot Module	JH953A

Accessories

HPE FlexFabric 12900E 24-port 10GbE and 4-port 100GbE HD 59xx Slot Module	JH954A
HPE FlexFabric 12900E 48-port 10GbE SFP+ HF Module	JQ061A
HPE X240 100G QSFP28 to QSFP28 1m Direct Attach Copper Cable	JL271A
HPE X240 100G QSFP28 to QSFP28 3m Direct Attach Copper Cable	JL272A
HPE X150 100G QSFP28 MPO SR4 100m MM Transceiver	JL274A
HPE X150 100G QSFP28 LC LR4 10km SM Transceiver	JL275A
HPE X150 100G QSFP28 MPO PSM4 500m SM Transceiver	JH420A
HPE X150 100G QSFP28 CWDM4 2km SM Transceiver	JH673A
HPE X2A0 100G QSFP28 to QSFP28 7m Active Optical Cable	JL276A
HPE X2A0 100G QSFP28 to QSFP28 10m Active Optical Cable	JL277A
HPE X2A0 100G QSFP28 to QSFP28 20m Active Optical Cable	JL278A
HPE X240 100G QSFP28 to QSFP28 5m Direct Attach Copper Cable	JL273A
HPE X240 QSFP28 4xSFP28 1m Direct Attach Copper Cable	JL282A
HPE X240 QSFP28 4xSFP28 3m Direct Attach Copper Cable	JL283A
HPE X240 QSFP28 4xSFP28 5m Direct Attach Copper Cable	JL284A
HPE FlexFabric 12900E 3000W AC Power Supply Unit	JH348A
HPE FlexFabric 12900E 2400W AC Power Supply Unit	JH108A
HPE FlexFabric 12900E 2400W DC Power Supply Unit	JH269A
HPE FlexFabric 12900E 48V 3m DC Power Supply Unit Cable	JQ232A
HPE FlexFabric 12904E High Speed Fan Tray Assembly	JH448A
HPE FlexFabric 12900E LPU Adapter	JH107A

HPE FlexFabric 12902E Switch Chassis (JH345A)

HPE FlexFabric 12902E Main Processing Unit	JH346A
HPE FlexFabric 12900E 36-port 100GbE QSFP28 HB Module	JH357A
HPE FlexFabric 12900E 18-port 100G QSFP28/18-port 40G QSFP+ HB Module	JH422A
HPE FlexFabric 12900E 18-port 100G QSFP28/18-port 40G QSFP+ HF Module	JH425A
HPE FlexFabric 12900E 48-port 40GbE QSFP+ HB Module	JH359A
HPE FlexFabric 12900E 48-port 1/10GbE SFP+ 2-port 100GbE QSFP28 HB Module	JH360A
HPE FlexFabric 12900E 24p 10G/2p 40G HB 59xx Slot Module	JH953A
HPE FlexFabric 12900E 24-port 10GbE and 4-port 100GbE HD 59xx Slot Module	JH954A
HPE FlexFabric 12900E 48-port 10GbE SFP+ HF Module	JQ061A
HPE FlexFabric 12902E High Speed Fan Tray Assembly	JH447A
HPE FlexFabric 7900 1800w AC Power Supply Unit	JG840A
HPE FlexFabric 12902E 1800W DC Power Supply Unit	JH671A
HPE FlexFabric 12902E 48V 15m DC Power Supply Unit Cable	JQ058A

HPE FlexFabric 12901E Switch Chassis (JH951A)

HPE FlexFabric 12901E Fan Tray Assembly	JH952A
HPE FlexFabric 12900E 24p 10G/2p 40G HB 59xx Slot Module	JH953A
HPE FlexFabric 12900E 24-port 10GbE and 4-port 100GbE HD 59xx Slot Module	JH954A
HPE FlexFabric 12900E 48-port 10GbE SFP+ HF Module	JQ061A
HPE FlexFabric 12900E 36-port 100GbE QSFP28 HB Module	JH357A
HPE FlexFabric 12900E 18-port 100G QSFP28/18-port 40G QSFP+ HB Module	JH422A
HPE FlexFabric 12900E 18-port 100G QSFP28/18-port 40G QSFP+ HF Module	JH425A
HPE FlexFabric 12900E 48-port 40GbE QSFP+ HB Module	JH359A
HPE FlexFabric 12900E 48-port 1/10GbE SFP+ 2-port 100GbE QSFP28 HB Module	JH360A
HPE FlexFabric 12900E 3000W AC Power Supply Unit	JH348A
HPE FlexFabric 12900E 2400W AC Power Supply Unit	JH108A
HPE FlexFabric 12900E 2400W DC Power Supply Unit	JH269A

Accessories

HPE FlexFabric 12900E 48V 3m DC Power Supply Unit Cable	JQ232A

HPE FlexFabric 12910 Switch AC Chassis (JG619A)

HPE FlexFabric 12910 Main Processing Unit	JG621A
HPE FlexFabric 12910 3.84Tbps Type B Fabric Module	JG623A
HPE FlexFabric 12910 1.92Tbps Type A Fabric Module	JG622A
HPE 12500 2000W AC Power Supply	JF429A
HPE FlexFabric 12910 Spare Fan Assembly	JG631A
HPE FlexFabric 12910 Optional Air Filter	JG876A

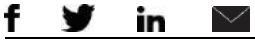
Summary of Changes

Date	Version History	Action	Description of Change
01-Oct-2018	Version 34	Changed	Recommended and Extended markings removed from the document.
04-Sep-2018	Version 33	Changed	Configuration section: Rules on the 59XX Modules were updated
06-Aug-2018	Version 32	Changed	Configuration section updated
07-May-2018	Version 31	Added	SKUs added: JH419A; JH435A; JH671A; JH954A; JQ058A
04-Dec-2017	Version 30	Added	Models added: JH951A SKUs added: JH952A, JH953A, JQ059A, JQ061A, JQ232A
		Changed	Document name updated to HPE FlexFabric 12900E Switch Series
03-Jul-2017	Version 29	Changed	Configuration section updated
05-Jun-2017	Version 28	Added	Model added: JH345A SKUs added: JH346A, JH348A, JH447A, JH423A, JH424A, JH448A, JH668A, JH669A, JH673A
03-Apr-2017	Version 27	Added	SKUs added: JH422A; JH425A
06-Mar-2017	Version 26	Added	SKUs added: JL437A; JL438A; JL439A
06-Feb-2017	Version 25	Added	SKU added: JH420A
07-Nov-2016	Version 24	Added	SKU added: JL306A
03-Oct-2016	Version 23	Added	SKU added: JH361A
			SKUs added on Sept NPI are now supported for the 12916E model:JH103A
05-Sep-2016	Version 22	Added	SKUs added: JH362A, JH364A, JH357A, JH359A, JH360A, JL271A, JL272A, JL274A, JL275A, JL276A, JL277A, JL278A, JL273A, JL282A, JL283A, JL284A
		Changed	Minor changes made on Features and benefits
01-Aug-2016	Version 21	Added	SKUs added: JL287A, JL288A, JL289A, JL290A, JL291A, JL292A, JL250A, JL286A
		Changed	Adding #AC3 Option on Configuration section. Technical Specifications updated.
06-June-2016	Version 20	Added	SKUs added: JH269A
		Changed	Technical Specifications and Configuration sections updated
22-Apr-2016	Version 19	Changed	SKUs descriptions updated on the document
16-Feb-2016	Version 18	Added	SKU added: JL251A
		Changed	Features and benefits, Technical Specifications and Standards and protocols
17-Dec-2015	Version 17	Changed	Technical Specifications updated
01-Dec-2015	Version 16	Added	SKUs added: JH241A, JH242A, JG882A, JG883A
		Changed	QuickSpecs name changed from HPE FlexFabric 12900 Switch Series to HPE FlexFabric 12900 Switch Series
12-Oct-2015	Version 15	Changed	Features and Benefits updated
02-Oct-2015	Version 14	Changed	Configuration section updated
28-Sep-2015	Version 13	Added	Models added: JH103A, JH255A, JH262A
		Changed	Changes made on Overview, Technical Specifications and Accessories
01-June-2015	Version 12	Added	SKUs Added: JG881A, JH006A
		Removed	SKUs removed: JG915A
		Changed	Overview and Technical Specifications Updated
30-Mar-2015	Version 11	Added	Added 5 new accessories: JG888B, JG889B, JH005A, JH007A, JG915A
		Changed	Updated Overview, Technical Specification and Accessories section

Summary of Changes

26-May-2014	Version 10	Added	Added 2 new accessories: JG888A and JG889A.
31-Mar-2014	Version 9	Changed	Transceivers were revised.
20-Feb-2014	Version 8	Removed	Removed several new accessories
18-Feb-2014	Version 7	Changed	Made significant changes to the Configuration section.
17-Dec-2013	Version 6	Changed	Made a minor change to the Configuration section.
14-Nov-2013	Version 5	Removed	Removed DC voltage
13-Nov-2013	Version 4	Changed	Made significant changes to the Configuration section.
14-Oct-2013	Version 3	Changed	Made minor changes to the Configuration section.
12-Jul-2013	Version 2	Changed	Made minor changes to the Configuration section.

Summary of Changes



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