

Overview

HPE FlexFabric 12500 Switch Series



HPE FlexFabric 12508E Switch



HPE FlexFabric 12518E Switch

Models

- HPE 12504 AC Switch Chassis
- HPE 12504 DC Switch Chassis
- HP 12508 AC Switch Chassis
- HP 12508 DC Switch Chassis
- HP 12518 AC Switch Chassis
- HP 12518 DC Switch Chassis
- HPE FlexFabric 12508E AC Switch Chassis
- HPE FlexFabric 12508E DC Switch Chassis

- JC654A
- JC655A
- JF431C
- JC652A
- JF430C
- JC653A
- JG782A
- JG783A

## Overview

HPE FlexFabric 12518E AC Switch Chassis

JG784A

HPE FlexFabric 12518E DC Switch Chassis

JG785A

## Product overview

The HPE 12500 Switch Series is a family of powerful, next-generation routing switches with outstanding capacity and scale for the network core or data center.

Designed for high performance with nonblocking and distributed Clos architecture, these switches deliver up to 24.3 Tbps switching capacity and 10.8 Bpps throughput with up to 400 Gbps per line card slot.

The 12500 switches also have energy-efficiency features that drive down operational expenses and are ideal for organizations contemplating large-scale data center consolidations, business continuity and disaster recovery sites, metropolitan area network deployments, and other applications requiring a robust, reliable and highly available switching platform.

## Key features

- Optimized for data centers with extensive virtualization and convergence featured
- Broad interface options from 1G to 100G scaling up to 24.3 Tbps switching capacity
- SDN ready with Open Flow 1.3 support
- Large Layer 2 and Layer 3 tables to support large scale deployments
- Fully redundant architecture with hot swappable components

## Features and benefits

### Data center optimized

- **Scalable Layer 2 fabrics**  
build flexible, resilient, and scalable Layer 2 fabrics with SPB and HPE IRF
- **Multitenant Device Context (MDC)**  
is an innovative data center virtualization solution that enables multi-tenancy, giving customers the ability to virtualize a physical switch into multiple logical devices, with each logical switch having its own tenants
- **HPE Ethernet Virtual Interconnect (EVI)**  
is an HPE Virtual Application Network innovation that provides a Layer 2 extension across the data center to simplify the interconnectivity of geographically dispersed data centers
- **NEW Data Center Bridging (DCB) protocols**  
provide 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
- **NEW 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
- **Accelerated performance with jumbo frames**  
for intra-data-center communication, or for data center to data center traffic (disaster recovery), reducing the amount of time required for data backup and recovery
- **Network load balancing (NLB) multicast ARP**  
Microsoft® NLB co-works with multicast ARP to provide servers with load balancing and fault switchover, which lowers costs and investment

### Software-defined networking

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

## Overview

### Performance

- **NEW High performance design with nonblocking and distributed Clos architecture**  
delivers up to 24.3 Tbps switching capacity and 10.8 Bpps throughput with up to 400 Gbps per line card slot
- **NEW High-density 1GbE, 10GbE and 40GbE interface connectivity**  
offers up to 18 interface module slots to scale up to 864 1GbE and 1/10GbE and 288 40GbE ports
- **Hardware-based wirespeed access control lists (ACLs)**  
help provide high levels of security and ease of administration without impacting network performance with a feature-rich TCAM-based ACL implementation
- **High-performance processor system**  
the supervisor module uses three different processors to isolate key tasks: control plane (STP, OSPF, BGP, MPLS, etc.), fast recovery protocols (RRPP, BFD, etc.), and chassis management (temperature, power, etc.)

### Product architecture

- **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 modularity, enhanced serviceability, stability and independent process monitoring through modern Comware v7 Operating System
- **In-Service Software Upgrade (ISSU)**  
provides an upgrade of the entire chassis, or an individual task or process, with zero packet loss

### 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
- **Ultrafast protocol convergence**  
enables link connectivity monitoring and reduces network convergence time for RIP, OSPF, BGP, IS-IS, VRRP, MPLS, and IRF
- **Device Link Detection Protocol (DLDP)**  
monitors link connectivity and shuts down ports at both ends if unidirectional traffic is detected, preventing loops in STP-based networks
- **Complete set of routing protocols (Layer 3 IPv4 and IPv6)**  
support virtually all existing routing protocols (RIP, OSPF, IS-IS, and BGP) for both Layer 3 IPv4 and Layer 3 IPv6; complete support of PIM-DM, PIM-SM, PIM-SSM, and MSDP
- **Hot patching**  
the 12500 switch series supports hot patching, allowing in-service patching for some isolated software problems
- **Non Stop Forwarding/Graceful Restart (NSF/GR)**  
using standardized-based IETF protocols, the 12500 switch series provides nonstop forwarding (switching/routing) for Layer 3 routing protocols (control plane – OSPF, BGP, and MPLS), providing hitless failover
- **Fully redundant and hot swappable components**  
providing full hardware redundancy for each component including power supplies, fan trays, supervisor modules and fabric modules to enable the highest level of availability
- **Rapid Ring Protection Protocol (RRPP)**  
provides fast recovery for ring Ethernet-based topology

### Quality of Service (QoS)

- **Virtual Output Queue (VOQ)**

## Overview

prevents head-of-line (HOL) blocking per port at peak time and distributes it over a period of time, increasing switch performance

- **IEEE 802.1p prioritization**  
delivers data to devices based on the priority and type of traffic
- **Layer 4 prioritization**  
enables prioritization based on TCP/UDP port numbers
- **Broadcast control**  
allows limitation of broadcast traffic rate to cut down on unwanted network broadcast traffic
- **Advanced classifier-based QoS**  
classifies traffic using multiple match criteria based on Layer 2, 3, and 4 information; applies QoS policies such as setting priority level and rate limit to selected traffic on a per-port or per-VLAN basis
- **Bandwidth shaping**
  - **Port-based rate limiting**  
provides per-port ingress-/egress-enforced maximum bandwidth
  - **Classifier-based rate limiting**  
uses access control lists (ACLs) to enforce maximum bandwidth for ingress/egress traffic on each port

## Compartmentalization

- **Department protection**  
using network virtualization standards (QinQ, VRF, and MPLS), the 12500 switch series allows organizations to isolate different business units with different resources (VRFs); using standard-based mechanisms, the network is completely virtualized, reducing cost and operations
- **IEEE 802.1ah Provider Backbone Bridge (MAC in MAC)**  
Provider Backbone Bridge (PBB) is a Layer 2 VPN technology that allows a complete separation of customer and provider domains by sealing the user MAC in the service provider MAC, which enhances the scalability of an Ethernet network

## Layer 2 switching

- **Multiple VLAN Registration Protocol (MVRP)**  
helps to maintain VLAN configuration dynamically based on current network configurations
- **GARP VLAN Registration Protocol**  
allows automatic learning and dynamic assignment of VLANs
- **IP multicast snooping and data-driven IGMP**  
automatically prevents flooding of IP multicast traffic
- **IEEE 802.1ad QinQ**  
increases the scalability of an Ethernet network by providing a hierarchical structure; connects multiple LANs on a high-speed campus or metro network
- **Bridge Protocol Data Unit (BPDU) tunneling**  
transmits Spanning Tree Protocol BPDUs transparently, allowing correct tree calculations across service providers, WANs, or MANs
- **VLAN support and tagging**  
supports IEEE 802.1Q (4K VLAN IDs)
- **Spanning Tree**  
the 12500 switch series supports the entire set of STP protocols (STP, RSTP, and MSTP), facilitating a complete integration with standard networks

## Layer 3 routing

- **Layer 3 IPv4 routing**  
provides routing of IPv4 at media speed; supports static routes, RIP and RIPv2, OSPF, IS-IS, and BGP
- **RIP and RIPv6 support**  
provides complete support of RIP for both IPv4 and IPv6
- **OSPF and OSPFv3 support**

## Overview

- provides complete support of OSPF for both IPv4 and IPv6
- **IS-IS and IS-ISv6 support**  
provides complete support of IS-IS for both IPv4 and IPv6
- **Equal-Cost Multipath (ECMP)**  
enables multiple equal-cost links in a routing environment to increase link redundancy and scale bandwidth
- **Layer 3 IPv6 routing**  
provides routing of IPv6 at media speed; supports static routes, RIPng, OSPFv3, IS-ISv6, and BGP4+
- **IPv6 tunneling**  
allows a smooth transition from IPv4 to IPv6 by encapsulating IPv6 traffic over an existing IPv4 infrastructure
- **Complete multicast protocol stack**  
PIM-DM, PIM-SM, PIM-SSM, MSDP, and extensions to BGP provide one of the most complete multicast protocol stacks
- **Policy routing**  
allows custom filters for increased performance and security; supports ACLs, IP prefix, AS paths, community lists, and aggregate policies
- **MPLS support**  
provides extended support of MPLS, including MPLS VPNs and MPLS Traffic Engineering (MPLS TE)
- **VPLS support**  
provides extended support of VPLS for data center to data center communication at Layer 2; provides support of hierarchical VPLS for scalability

## Management

- **sFlow**  
provides scalable, ASIC-based network monitoring and accounting; this allows network operators to gather a variety of sophisticated network statistics and information for capacity planning and real-time network monitoring purposes
- **IEEE 802.1ab LLDP discovery**  
advertises and receives management information from adjacent devices on a network, facilitating easy mapping by network management applications
- **USB support**
  - **File copy**  
allows users to copy switch files to and from a USB flash drive
- **Multiple configuration files**  
can be stored to the flash image
- **Command-line interface (CLI)**  
provides a secure, easy-to-use CLI for configuring the module via SSH or a switch console; provides direct real-time session visibility
- **Logging**  
provides local and remote logging of events via SNMP (v2c and v3) and syslog; provides log throttling and log filtering to reduce the number of log events generated
- **Management interface control**  
enables or disables each of the following interfaces depending on security preferences: console port, Telnet port, and SSH port
- **Out-of-band interface**  
isolates management traffic from user data plane traffic for complete isolation and total reachability, no matter what happens in the data plane
- **Network management**  
HPE Intelligent Management Center (IMC) centrally configures, updates, monitors, and troubleshoots
- **Network management**  
SNMP v2c/v3 MIB-II with traps
- **RADIUS accounting**  
logs all session details that can be used to generate usage reports or interface to a billing system
- **RMON**  
provides advanced monitoring and reporting capabilities for statistics, history, alarms, and events
- **Remote Intelligent Mirroring**

## Overview

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

## Connectivity

- **IPv6 native support:**
  - **IPv6 host**  
enables switches to be managed and deployed at the IPv6 network's edge
  - **Dual stack (IPv4 and IPv6)**  
transitions from IPv4 to IPv6, supporting connectivity for both protocols
  - **Multicast Listener Discovery (MLD) snooping**  
forwards IPv6 multicast traffic to the appropriate interface
  - **IPv6 ACL/QoS**  
supports ACL and QoS for IPv6 network traffic, preventing traffic flooding
  - **IPv6 routing**  
supports IPv6 static routes and IPv6 versions of RIP and OSPF routing protocols

## Security

- **Control Plane Policing (CoPP)**  
provides protection against DoS attacks at infrastructure routers and switches and ease of configuration for control plane policies
- **IEEE 802.1X and RADIUS network logins**  
control port-based access for authentication and accountability
- **Secure FTP**  
allows secure file transfer to and from the switch; protects against unwanted file downloads or unauthorized copying of a switch configuration file
- **Switch management logon security**  
can require either RADIUS or TACACS+ authentication for secure switch CLI logon
- **DHCP protection**  
blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks
- **Dynamic ARP protection**  
blocks ARP broadcasts from unauthorized hosts, preventing eavesdropping or theft of network data
- **Secure Shell (SSHv2)**  
encrypts all transmitted data for secure, remote CLI access over IP networks
- **Secure management access**  
securely encrypts all access methods (CLI, GUI, or MIB) through SSHv2 and SNMPv3
- **Access control lists (ACLs)**  
provide IPv4 and IPv6 filtering based on source/destination IP address/subnet and source/destination TCP/UDP port number
- **Media access control (MAC) authentication**  
provides simple authentication based on a user's MAC address; supports local or RADIUS-based authentication

## Convergence

- **Layer 2, 3, and 4 QoS mechanisms**  
support DiffServ priority tagging based on IP address, IP Type of Service (ToS), Layer 3 protocol, TCP/UDP port number, and source port
- **IP multicast snooping and data-driven IGMP**  
automatically prevent flooding of IP multicast traffic
- **LLDP-MED**  
is a standard extension that automatically configures network devices, including LLDP-capable IP phones
- **Internet Group Management Protocol (IGMP)**  
is used by IP hosts to establish and maintain multicast groups; supports IGMPv1, v2, and v3; utilizes Any-Source Multicast (ASM) or Source-Specific Multicast (SSM) to manage IPv4 multicast networks

## Overview

- **Protocol Independent Multicast (PIM)**  
defines modes of Internet IPv4 and IPv6 multicasting to allow one-to-many and many-to-many transmission of information; supports PIM Dense Mode (DM), Sparse Mode (SM), and Source-Specific Multicast(SSM)
- **Multicast Source Discovery Protocol (MSDP)**  
is used for inter-domain multicast applications, allowing multiple PIM-SM domains to interoperate
- **Multicast VLAN**  
allows multiple VLANs to receive the same IPv4 or IPv6 multicast traffic, lessening network bandwidth demand by reducing or eliminating multiple streams to each VLAN

## Monitor and diagnostics

- **Port mirroring**  
enables traffic on a port to be simultaneously sent to a network analyzer for monitoring
- **Connectivity fault detection (IEEE 802.1ag)**  
connectivity fault detection (CFD) provides a Layer 2 link Operations, Administration, and Maintenance (OAM) mechanism used for link connectivity detection and fault locating

## Investment protection

- **Modular switch fabric**  
provides investment protection by enabling future performance upgrades and increased port density
- **Environmentally friendly**  
RoHS support and low power consumption based on the latest technology provide outstanding power efficiency

## 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 12504 AC Switch Chassis                                                                                                                                                                                                                                                                                                                                         | JC654A                             |
| <ul style="list-style-type: none"><li>• 2 - MPUx (Management Ports)</li><li>• 4 - I/O module slots</li><li>• 4 - Fabric module slots</li><li>• Must select min 1 Management Module</li><li>• Must select min 3 Power Supply</li><li>• Must select Min 1 Fans</li><li>• Must select Min 4 Fabric Modules</li><li>• 10U - Height Rack</li></ul>                       |                                    |
| HPE FlexFabric 12508E AC Switch Chassis                                                                                                                                                                                                                                                                                                                             | JG782A                             |
| <ul style="list-style-type: none"><li>• 2 - MPUx (Management Ports)</li><li>• 8- I/O module slots</li><li>• 9 - Fabric module slots</li><li>• Must select min 1 Management Module</li><li>• Must select min 3 Power Supply</li><li>• PEM included</li><li>• Must select Min 2 Fans</li><li>• Must select Min 8 Fabric Modules</li><li>• 22U - Height Rack</li></ul> | See Configuration<br><b>NOTE:1</b> |
| PDU Cable NA/MEX/TW/JP                                                                                                                                                                                                                                                                                                                                              | JG782A#B2B                         |
| <ul style="list-style-type: none"><li>• C19 PDU Jumper Cord (NA/MEX/TW/JP)</li></ul>                                                                                                                                                                                                                                                                                |                                    |
| PDU Cable ROW                                                                                                                                                                                                                                                                                                                                                       | JG782A#B2C                         |
| <ul style="list-style-type: none"><li>• C19 PDU Jumper Cord (ROW)</li></ul>                                                                                                                                                                                                                                                                                         |                                    |
| High Volt Power Entry Module to Wall Power Cord                                                                                                                                                                                                                                                                                                                     | JG782A#B2E                         |
| <ul style="list-style-type: none"><li>• NEMA L6-20P Cord (NA/MEX/JP/TW)</li></ul>                                                                                                                                                                                                                                                                                   |                                    |
| No Power Cord                                                                                                                                                                                                                                                                                                                                                       | JG782A#AC3                         |
| <ul style="list-style-type: none"><li>• No Localized Power Cord Selected</li></ul>                                                                                                                                                                                                                                                                                  |                                    |
| HPE FlexFabric 12518E AC Switch Chassis                                                                                                                                                                                                                                                                                                                             | JG784A                             |
| <ul style="list-style-type: none"><li>• 2 - MPUx (Management Ports)</li><li>• 18 - I/O module slots</li><li>• 9 - Fabric module slots</li><li>• Must select min 1 Management Module</li><li>• Must select min 6 Power Supply</li><li>• PEM included</li></ul>                                                                                                       | See Configuration<br><b>NOTE:1</b> |

## Configuration

- Must select min 2 Fans
- Must select Min 8 Fabric Modules
- 38U - Height Rack

|                                                                                        |            |
|----------------------------------------------------------------------------------------|------------|
| PDU Cable NA/MEX/TW/JP                                                                 | JG784A#B2B |
| <ul style="list-style-type: none"> <li>• C19 PDU Jumper Cord (NA/MEX/TW/JP)</li> </ul> |            |
| PDU Cable ROW                                                                          | JG784A#B2C |
| <ul style="list-style-type: none"> <li>• C19 PDU Jumper Cord (ROW)</li> </ul>          |            |
| High Volt Power Entry Module to Wall Power Cord                                        | JG784A#B2E |
| <ul style="list-style-type: none"> <li>• NEMA L6-20P Cord (NA/MEX/JP/TW)</li> </ul>    |            |
| No Power Cord                                                                          | JG784A#AC3 |
| <ul style="list-style-type: none"> <li>• No Localized Power Cord Selected</li> </ul>   |            |

### Configuration Rules:

**Note 1**      Localization required on orders without #B2B, #B2C or #B2E options.

## Box Level Integration CTO Models

### CTO Solution Sku

|                                                                     |        |
|---------------------------------------------------------------------|--------|
| HPE 125xx Configure-to-order Switch Solution                        | JG477A |
| <ul style="list-style-type: none"> <li>• SSP trigger SKU</li> </ul> |        |

### CTO Switch Chassis

|                                                                                                                                                                                                                                                                                                                                                        |                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| HPE 12504 AC Switch Chassis                                                                                                                                                                                                                                                                                                                            | JC654A                                |
| <ul style="list-style-type: none"> <li>• 2 - MPUx (Management Ports)</li> <li>• 4 - I/O module slots</li> <li>• 4 - Fabric module slots</li> <li>• Must select min 1 Management Module</li> <li>• Must select min 3 Power Supply</li> <li>• Must select Min 1 Fans</li> <li>• Must select Min 4 Fabric Modules</li> <li>• 10U - Height Rack</li> </ul> | See Configuration<br><b>NOTE:1, 2</b> |

### Configuration Rules:

**Note 1**    If this Switch is selected at least one of these Power Supplies is required: (Use #0D1 if switch is CTO)

## Configuration

### JF429A - HPE 12500 2000W AC Power Supply

**Note 2** If the Switch Chassis is to be Box Level Factory Integrated (CTO)), Then the #OD1 is required on the Switch Chassis and integrated to the JG477A - HP 125xx CTO Switch Solution (Min 1/Max 1 Switch per SSP)

## Rack Level Integration CTO Models

### HPE 12504 AC Switch Chassis

- 2 - MPUx (Management Ports)
- 4 - I/O module slots
- 4 - Fabric module slots
- Must select min 1 Management Module
- Must select min 3 Power Supply
- Must select Min 1 Fans
- Must select Min 4 Fabric Modules
- 10U - Height Rack

JC654A  
See Configuration  
**NOTE:1, 2, 3**

### HPE FlexFabric 12508E AC Switch Chassis

- 2 - MPUx (Management Ports)
- 8- I/O module slots
- 9 - Fabric module slots
- Must select min 1 Management Module
- Must select min 3 Power Supply
- PEM included
- Must select Min 2 Fans
- Must select Min 8 Fabric Modules
- 22U - Height Rack

JG782A  
See Configuration  
**NOTE:1, 3, 5**

### PDU Cable NA/MEX/TW/JP

- C19 PDU Jumper Cord (NA/MEX/TW/JP)

JG782A#B2B

### PDU Cable ROW

- C19 PDU Jumper Cord (ROW)

JG782A#B2C

### No Power Cord

- No Localized Power Cord Selected

JG782A#AC3

### HPE FlexFabric 12518E AC Switch Chassis

- 2 - MPUx (Management Ports)
- 18 - I/O module slots
- 9 - Fabric module slots
- Must select min 1 Management Module
- Must select min 6 Power Supply
- PEM included
- Must select min 2 Fans
- Must select Min 8 Fabric Modules

JG784A  
See Configuration  
**NOTE:1, 3, 5**

Configuration

|                                      |  |            |
|--------------------------------------|--|------------|
| • 38U - Height Rack                  |  |            |
|                                      |  |            |
| PDU Cable NA/MEX/TW/JP               |  | JG784A#B2B |
| • C19 PDU Jumper Cord (NA/MEX/TW/JP) |  |            |
|                                      |  |            |
| PDU Cable ROW                        |  | JG784A#B2C |
| • C19 PDU Jumper Cord (ROW)          |  |            |
|                                      |  |            |
| No Power Cord                        |  | JG784A#AC3 |
| • No Localized Power Cord Selected   |  |            |

Configuration Rules:

- Note 1If this Switch is selected at least one of these Power Supply is required: (Use #0D1 if switch is CTO)  
JF429A - HPE 12500 2000W AC Power Supply
- Note 2When Switches/Routers are Factory Racked, Then #B2B, or #B2C should be the Defaulted Power Cable option on the Power Electrical Module. (See Drop down remark in the "Internal Power Supplies" section.)
- Note 3If HPE CTO Switch Chassis is selected to be Rack Level Integration, Then the CTO Switch Chassis needs to integrate (with #0D1) to the BW966A or BW968A HPE Universal Rack Only. (Default to the BW966A.)
- Note 5Localization required on orders without #B2B or #B2C options.

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

Modules

Management Modules

|                                                                    |  |                     |
|--------------------------------------------------------------------|--|---------------------|
| System (std 0 // max 2) User Selection (min 1 // max 2) per Switch |  |                     |
|                                                                    |  |                     |
| HPE FlexFabric 12500E Main Processing Unit                         |  | JG802A              |
| • No supported Transceivers                                        |  |                     |
|                                                                    |  | See Configuration   |
|                                                                    |  | <b>NOTE:1, 3, 4</b> |

Configuration Rules:

- Note 1Management Modules cannot be mixed, They must all be the same SKU.
- Note 3Supported on JC654A Switch Chassis only.
- Note 4Supported on JG782A and JG784A Switch Chassis only.

## Configuration

### Fabric Modules

12504 - System (std 0 // max 4) User Selection (min 4 // max 4) per Switch

12508 and 12518 System (std 0 // max 9) User Selection (min 8 // max 9) per Switch

HPE 1250x G2 Fabric Module

JC658A  
See Configuration  
**NOTE: 3, 4**

HPE FlexFabric 12508E Fabric Module

JG798A  
See Configuration  
**NOTE: 4, 6**

HPE FlexFabric 12518E Fabric Module

JG800A  
See Configuration  
**NOTE: 4, 7**

### Configuration Rules:

**Note 3** Supported on Switch JC654A Switch Chassis only.

**Note 4** Fabric Modules cannot be mixed, They must all be the same SKU

**Note 6** Supported on Switch JG782A Switch Chassis only.

**Note 7** Supported on Switch JG784A Switch Chassis only.

### I/O Modules

12504 - System (std 0 // max 4) User Selection (min 0 // max 4)

12508 - System (std 0 // max 8) User Selection (min 0 // max 8)

12518 - System (std 0 // max 18) User Selection (min 0 // max 18)

HPE FlexFabric 12500 16-port 40GbE QSFP+ FD Module

- Min 0 // Max 16 QSFP+ Transceivers

JG790A  
See Configuration  
**NOTE: 2, 6, 10, 11**

HPE FlexFabric 12500 48-port 1/10GbE SFP+ FD Module

- Min 0 // Max 48 SFP+ Transceivers

JG796A  
See Configuration  
**NOTE: 3, 4, 6, 10, 11**

HPE FlexFabric 12500 40-port 1/10GbE SFP+ FD Module

JG792A

## Configuration

- Min 0 // Max 40 SFP+ Transceivers

See Configuration  
**NOTE:** 3, 4, 6, 10,  
11

HPE FlexFabric 12500 40-port 1/10GbE SFP+ FG Module

- Min 0 // Max 40 SFP+ Transceivers

JG794A  
See Configuration  
**NOTE:** 3, 4, 6, 10,  
11

HPE FlexFabric 12500 4-port 100GbE CFP FD Module

- Min 0 // Max 4 CFP Transceivers

JG786A  
See Configuration  
**NOTE:** 6, 10, 11,  
12

HPE FlexFabric 12500 4-port 100GbE CFP FG Module

- Min 0 // Max 4 CFP Transceivers

JG788A  
See Configuration  
**NOTE:** 6, 10, 11,  
12

### Configuration Rules:

#### Note 2 The following 40G Transceivers install into this Module:

|                                                       |        |
|-------------------------------------------------------|--------|
| HPE X140 40G QSFP+ LC LR4 SM 10km 1310nm Transceiver  | JG661A |
| HPE X140 40G QSFP+ MPO SR4 Transceiver                | JG325B |
| HPE X140 40G QSFP+ MPO MM 850nm CSR4 300m Transceiver | JG709A |

#### Note 3 The following Transceivers install into this Module:

|                                            |        |
|--------------------------------------------|--------|
| HPE X170 1G SFP LC LH70 1550 Transceiver   | JD109A |
| HPE X170 1G SFP LC LH70 1570 Transceiver   | JD110A |
| HPE X170 1G SFP LC LH70 1590 Transceiver   | JD111A |
| HPE X170 1G SFP LC LH70 1610 Transceiver   | JD112A |
| HPE X170 1G SFP LC LH70 1510 Transceiver   | JD115A |
| 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 X120 1G SFP LC BX 10-U Transceiver     | JD098B |
| HPE X120 1G SFP LC BX 10-D Transceiver     | JD099B |

#### Note 4 The following Transceivers install into this Module: (Use #0D1 or #B01 if switch is CTO) - if applicable

|                                                                     |        |
|---------------------------------------------------------------------|--------|
| 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 FlexNetwork X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable | JD097C |

## Configuration

|                                                                     |        |
|---------------------------------------------------------------------|--------|
| HPE FlexNetwork X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable | JG081C |
| HPE X130 10G SFP+ LC ER 40km Transceiver                            | JG234A |
| HPE FlexNetwork X240 10G SFP+ SFP+ 7m Direct Attach Copper Cable    | JC784C |

**Note 6** If this Module is selected then ONLY the following Fabric Modules must be selected as well:

|                                     |        |
|-------------------------------------|--------|
| HP 12518 G2 Fabric Module           | JC657A |
| HPE 1250x G2 Fabric Module          | JC658A |
| HPE FlexFabric 12508E Fabric Module | JG798A |
| HPE FlexFabric 12518E Fabric Module | JG800A |

**Note 10** Supported on JF431C, JC652A, JF430C, JC653A, JC654A, JC655A, JG782A, JG783A, JG784A and JG785A Switch Chassis only.

**Note 11** These modules require JG800A, JG798A, JC658A, JC657A, JC815A, JC816A, JG497A or JG802A MPU.

**Note 12** The following Transceivers install into this Module:

|                                              |        |
|----------------------------------------------|--------|
| HPE X150 100G CFP LC LR4 10km SM Transceiver | JG829A |
|----------------------------------------------|--------|

**Remarks** JC064B and JC476B - Do not install the card in any of the following slots: slot 16, 17, 18, or 19 of the S12518.

## Transceivers

### SFP Transceivers

|                                            |        |
|--------------------------------------------|--------|
| 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 X125 1G SFP LC LH70 Transceiver        | JD063B |
| HPE X120 1G SFP RJ45 T Transceiver         | JD089B |
| HPE X120 1G SFP LC SX Transceiver          | JD118B |
| HPE X120 1G SFP LC LX Transceiver          | JD119B |
| HPE X120 1G SFP LC BX 10-U Transceiver     | JD098B |
| HPE X120 1G SFP LC BX 10-D Transceiver     | JD099B |

### 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 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 |

## Configuration

### QSFP+ Transceivers

|                                                       |        |
|-------------------------------------------------------|--------|
| HPE X140 40G QSFP+ LC LR4 SM 10km 1310nm Transceiver  | JG661A |
| HPE X140 40G QSFP+ MPO SR4 Transceiver                | JG325B |
| HPE X140 40G QSFP+ MPO MM 850nm CSR4 300m Transceiver | JG709A |

### XFP Transceivers

|                                                            |        |
|------------------------------------------------------------|--------|
| HPE X135 10G XFP LC ER Transceiver                         | JD121A |
| HPE X130 10G XFP LC ZR Single Mode 80km 1550nm Transceiver | JD107A |
| HPE X130 10G XFP LC SR Transceiver                         | JD117B |
| HPE X130 10G XFP LC LR Single Mode 10km 1310nm Transceiver | JD108B |

## Internal Power Supplies

12508 and 12504 - System (std 0 // max 6) User Selection (min 3 // max 6)

12508E - System (std 0 // max 8) User Selection (min 3 // max 8)

12518 - System (std 0 // max 12) User Selection (min 6 // max 12)

|                                 |                   |
|---------------------------------|-------------------|
| HPE 12500 2000W AC Power Supply | JF429A            |
|                                 | See Configuration |
|                                 | <b>NOTE:1</b>     |

### Configuration Rules:

**Note 1** Supported on Switches JC654A, JG782A and JG784A only.

**Remarks:** 12504 only - Default 6 power supplies and allow the user to change down to 3.  
 12508E only - Default 6 power supplies and allow the user to change down to 3.  
 12518E only - Default 12 power supplies and allow the user to change down to 6.

The power module support load balancing and N+1/N+M redundancy. Deploying N+1 power redundancy  
 The total number of power modules (JF431C, JF430C) = Ceiling (total power load of the chassis/2000) + 1  
 For example, if the total load of the chassis is 3000 W, the number of power modules must be 2 + 1 = 3.

Deploying 1:1 power redundancy

JF431C-Requires 6 power modules.

JF430C-Total number of power modules = [Ceiling (total power load of the chassis/2000) ] x 2

For example, if the total power load of the chassis is 7000 W, the total number of power modules must be (4 + 1) x 2 = 10.

Localization is not required on these internal AC power supplies. Localization is covered on the chassis for the 125xxE AC models (JG782A, JG784A), or on the PEMs listed below for the AC 125xx models (JC654A).

Configuration

Server Specific Options

Multi-Mode Cables

|                                                         |        |
|---------------------------------------------------------|--------|
| HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable  | QK732A |
| HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable  | QK733A |
| HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable  | QK734A |
| HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable | QK735A |
| HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable | QK736A |
| HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable | QK737A |

Cable Guides

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

|                                      |        |
|--------------------------------------|--------|
| HP 12500 Side Cable Management Guide | JC084A |
|--------------------------------------|--------|

|                                                                           |                                              |
|---------------------------------------------------------------------------|----------------------------------------------|
| HPE FlexFabric 12508E Optional Extended Cable Guide for AC Powered Switch | JG830A<br>See Configuration<br><b>NOTE:5</b> |
|---------------------------------------------------------------------------|----------------------------------------------|

|                                                                           |                                              |
|---------------------------------------------------------------------------|----------------------------------------------|
| HPE FlexFabric 12518E Optional Extended Cable Guide for AC Powered Switch | JG831A<br>See Configuration<br><b>NOTE:6</b> |
|---------------------------------------------------------------------------|----------------------------------------------|

Configuration Rules:

Note 5 Supported on Switch JG782A - HPE FlexFabric 12508E AC Switch Chassis only.

Note 6 Supported on Switch JG784A - HPE FlexFabric 12518E AC Switch Chassis only.

Remarks: These items are optional .and used by customers for I/O cabling management.

Fan Assemblies

12504 Only - System (std 0 // max 1) User Selection (min 1 // max 1) Per Switch

12508 and 12518 Only - System (std 0 // max 2) User Selection (min 2 // max 2) Per Switch

|                        |                                              |
|------------------------|----------------------------------------------|
| HPE 12504 Fan Assembly | JC664A<br>See Configuration<br><b>NOTE:3</b> |
|------------------------|----------------------------------------------|

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| HPE FlexFabric 12500E Fan Tray Assembly | JG805A<br>See Configuration<br><b>NOTE:4</b> |
|-----------------------------------------|----------------------------------------------|

Configuration

Configuration Rules:

- Note 3 Supported on Switch JC654A Switch Chassis only.
- Note 4 Supported on JG782A and JG784A Switch Chassis only.

Air Filter Assemblies

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

|                                           |                                       |
|-------------------------------------------|---------------------------------------|
| HPE FlexFabric 12508E Optional Air Filter | JG808A<br>See Configuration<br>NOTE:3 |
| HPE FlexFabric 12518E Optional Air Filter | JG809A<br>See Configuration<br>NOTE:4 |

Configuration Rules:

- Note 3 Supported on Switch JG782A Switch Chassis only.
- Note 4 Supported on Switch JC653A and JG784A Switch Chassis only.

Power Monitor Module

12508E and 12518E only-System (std 0 // max 1) User Selection (min 0 // max 1) Per Switch

|                                                  |                                       |
|--------------------------------------------------|---------------------------------------|
| HPE FlexFabric 12500E Spare Power Monitor Module | JG804A<br>See Configuration<br>NOTE:2 |
|--------------------------------------------------|---------------------------------------|

Configuration Rules:

- Note 2 This item is only used to replace the Power Monitor Module of an JG782A, JG784A. A host is delivered with the Power Monitor Module.

Mounting Kit

|                                                 |        |
|-------------------------------------------------|--------|
| HPE X421 Chassis Universal 4-post Rackmount Kit | JC665A |
|-------------------------------------------------|--------|

Remarks: This item is optional and used by customers to allow the chassis to slide in and out of the rack

## Technical Specifications

### HPE 12504 AC Switch Chassis (JC654A)

|                                   |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                               |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>I/O ports and slots</b>        | 4 open module slots<br>Supports a maximum of 192 Gigabit Ethernet ports or 192 1/10GbE ports or 64 40GbE ports, or a combination                                                                                                                                                                                              |                                                                                                                                                                                                                                               |
| <b>Additional ports and slots</b> | 2 MPU (for management modules) slots<br>4 switch fabric slots                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                               |
| <b>Physical characteristics</b>   | <b>Dimensions</b>                                                                                                                                                                                                                                                                                                             | 17.4(w) x 27.87(d) x 17.4(h) in (44.2 x 70.8 x 44.2 cm) (10U height)                                                                                                                                                                          |
|                                   | <b>Weight</b>                                                                                                                                                                                                                                                                                                                 | 132.28 lb (60 kg)                                                                                                                                                                                                                             |
|                                   | <b>Full configuration weight</b>                                                                                                                                                                                                                                                                                              | 220.46 lb (100 kg)                                                                                                                                                                                                                            |
| <b>Memory and processor</b>       | <b>Gigabit Module</b>                                                                                                                                                                                                                                                                                                         | PowerPC @ 667 MHz, 1 GB RAM; Packet buffer size: 512 MB (Ingress, shared by 24 1-GbE ports)                                                                                                                                                   |
|                                   | <b>10G Module</b>                                                                                                                                                                                                                                                                                                             | PowerPC @ 667 MHz, 1 GB RAM; Packet buffer size: 512 MB (Ingress/shared by 2 10GbE ports)                                                                                                                                                     |
|                                   | <b>Management Module</b>                                                                                                                                                                                                                                                                                                      | Quad Core CPU @ 1800 MHz, 512 MB flash, 4 GB compact flash, 8 GB RAM                                                                                                                                                                          |
|                                   | <b>Fabric</b>                                                                                                                                                                                                                                                                                                                 | PowerPC @ 400 MHz, 128 MB RAM                                                                                                                                                                                                                 |
| <b>Mounting and enclosure</b>     | Mounts in an EIA-standard 19 in. Telco rack or equipment cabinet                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                               |
| <b>Performance</b>                | <b>Throughput</b>                                                                                                                                                                                                                                                                                                             | 1920 Mpps                                                                                                                                                                                                                                     |
|                                   | <b>Routing/Switching capacity</b>                                                                                                                                                                                                                                                                                             | 3240 Gb/s                                                                                                                                                                                                                                     |
|                                   | <b>Operating temperature</b>                                                                                                                                                                                                                                                                                                  | 32°F to 104°F (0°C to 40°C)                                                                                                                                                                                                                   |
| <b>Environment</b>                | <b>Operating relative humidity</b>                                                                                                                                                                                                                                                                                            | 5% to 95%, non-condensing                                                                                                                                                                                                                     |
|                                   | <b>Nonoperating/Storage temperature</b>                                                                                                                                                                                                                                                                                       | -40°F to 158°F (-40°C to 70°C)                                                                                                                                                                                                                |
|                                   | <b>Nonoperating/Storage relative humidity</b>                                                                                                                                                                                                                                                                                 | 5% to 95%, non-condensing                                                                                                                                                                                                                     |
| <b>Electrical characteristics</b> | <b>Frequency</b>                                                                                                                                                                                                                                                                                                              | 50/60 Hz                                                                                                                                                                                                                                      |
|                                   | <b>Maximum heat dissipation</b>                                                                                                                                                                                                                                                                                               | 8123 BTU/hr (8569.77 kJ/hr)                                                                                                                                                                                                                   |
|                                   | <b>Voltage</b>                                                                                                                                                                                                                                                                                                                | 100 - 120 / 200 - 240 VAC, rated (depending on power supply chosen)                                                                                                                                                                           |
|                                   | <b>Maximum power rating</b>                                                                                                                                                                                                                                                                                                   | 2380 W                                                                                                                                                                                                                                        |
|                                   | <b>Notes</b>                                                                                                                                                                                                                                                                                                                  | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. |
| <b>Safety</b>                     | CE Labeled; cUL Certified; UL Listed; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60825; IEC 60950-1:2001 (with CB Report); CAN/CSA-C22.2 No. 60950-1-03; Anatel; ULAR; GOST; EN 60950-1/A11; FDA 21 CFR Subchapter J; NOM; UL 60950-1:2003; EN 60950-1:2001; ROHS Compliance |                                                                                                                                                                                                                                               |
| <b>Emissions</b>                  | VCCI Class A; EN 55022 Class A; VCCI V-3/2000.04; ICES-003 Class A; AS/NZS CISPR22 Class A; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A                                                                                                                                                                          |                                                                                                                                                                                                                                               |
| <b>Immunity</b>                   | <b>Generic</b>                                                                                                                                                                                                                                                                                                                | ETSI EN 300 386 V1.3.3                                                                                                                                                                                                                        |
|                                   | <b>EN</b>                                                                                                                                                                                                                                                                                                                     | EN 55024:1998+ A1:2001 + A2:2003                                                                                                                                                                                                              |

## Technical Specifications

|                   |                                                                                                                                                                                                                                                                                                                                                  |                              |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|                   | <b>ESD</b>                                                                                                                                                                                                                                                                                                                                       | EN 61000-4-2; IEC61000-4-2   |
|                   | <b>Radiated</b>                                                                                                                                                                                                                                                                                                                                  | EN 61000-4-3; IEC61000-4-3   |
|                   | <b>EFT/Burst</b>                                                                                                                                                                                                                                                                                                                                 | EN 61000-4-4; IEC61000-4-4   |
|                   | <b>Surge</b>                                                                                                                                                                                                                                                                                                                                     | EN 61000-4-5; IEC61000-4-5   |
|                   | <b>Conducted</b>                                                                                                                                                                                                                                                                                                                                 | EN 61000-4-6; IEC61000-4-6   |
|                   | <b>Power frequency magnetic field</b>                                                                                                                                                                                                                                                                                                            | IEC 61000-4-8; EN61000-4-8   |
|                   | <b>Voltage dips and interruptions</b>                                                                                                                                                                                                                                                                                                            | EN 61000-4-11; IEC61000-4-11 |
|                   | <b>Harmonics</b>                                                                                                                                                                                                                                                                                                                                 | EN 61000-3-2, IEC 61000-3-2  |
|                   | <b>Flicker</b>                                                                                                                                                                                                                                                                                                                                   | EN 61000-3-3, IEC 61000-3-3  |
| <b>Management</b> | IMC - Intelligent Management Center; command-line interface; out-of-band management (serial RS-232C); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; terminal interface (serial RS-232C); modem interface                                                                                                                            |                              |
| <b>Services</b>   | Refer to the Hewlett Packard Enterprise website at: <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |                              |

### HPE 12504 DC Switch Chassis (JC655A)

|                                   |                                                                                                                                  |                                                                                             |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| <b>I/O ports and slots</b>        | 4 open module slots<br>Supports a maximum of 192 Gigabit Ethernet ports or 192 1/10GbE ports or 64 40GbE ports, or a combination |                                                                                             |
| <b>Additional ports and slots</b> | 2 MPU (for management modules) slots<br>4 switch fabric slots                                                                    |                                                                                             |
| <b>Physical characteristics</b>   | <b>Dimensions</b>                                                                                                                | 17.4(w) x 27.87(d) x 17.4(h) in (44.2 x 70.8 x 44.2 cm) (10U height)                        |
|                                   | <b>Weight</b>                                                                                                                    | 132.28 lb (60 kg)                                                                           |
|                                   | <b>Full configuration weight</b>                                                                                                 | 220.46 lb (100 kg)                                                                          |
| <b>Memory and processor</b>       | <b>Gigabit Module</b>                                                                                                            | PowerPC @ 667 MHz, 1 GB RAM; Packet buffer size: 512 MB (Ingress, shared by 24 1-GbE ports) |
|                                   | <b>10G Module</b>                                                                                                                | PowerPC @ 667 MHz, 1 GB RAM; Packet buffer size: 512 MB (Ingress/shared by 2 10GbE ports)   |
|                                   | <b>Management Module</b>                                                                                                         | Quad Core CPU @ 1800 MHz, 512 MB flash, 4 GB compact flash, 8 GB RAM                        |
|                                   | <b>Fabric</b>                                                                                                                    | PowerPC @ 400 MHz, 128 MB RAM                                                               |
| <b>Mounting and enclosure</b>     | Mounts in an EIA-standard 19 in. Telco rack or equipment cabinet                                                                 |                                                                                             |
| <b>Performance</b>                | <b>Throughput</b>                                                                                                                | up to 1920 Mpps                                                                             |
|                                   | <b>Routing/Switching capacity</b>                                                                                                | 3240 Gbps                                                                                   |
| <b>Environment</b>                | <b>Operating temperature</b>                                                                                                     | 32°F to 104°F (0°C to 40°C)                                                                 |
|                                   | <b>Operating relative humidity</b>                                                                                               | 5% to 95%, non-condensing                                                                   |
|                                   | <b>Nonoperating/Storage temperature</b>                                                                                          | -40°F to 158°F (-40°C to 70°C)                                                              |
|                                   | <b>Nonoperating/Storage relative humidity</b>                                                                                    | 5% to 95%, non-condensing                                                                   |
| <b>Electrical characteristics</b> | <b>Maximum heat dissipation</b>                                                                                                  | 8123 BTU/hr (8569.77 kJ/hr)                                                                 |
|                                   | <b>Voltage</b>                                                                                                                   | -48 to -60 VDC, rated                                                                       |

## Technical Specifications

|                   |                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                               |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   |                                                                                                                                                                                                                                                                                                                                                  | (depending on power supply chosen)                                                                                                                                                                                                            |
|                   | <b>Maximum power rating</b>                                                                                                                                                                                                                                                                                                                      | 2380 W                                                                                                                                                                                                                                        |
|                   | <b>Notes</b>                                                                                                                                                                                                                                                                                                                                     | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. |
| <b>Safety</b>     | CE Labeled; cUL Certified; UL Listed; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60825; IEC 60950-1:2001 (with CB Report); CAN/CSA-C22.2 No. 60950-1-03; Anatel; ULAR; GOST; EN 60950-1/A11; FDA 21 CFR Subchapter J; NOM; UL 60950-1:2003; EN 60950-1:2001; ROHS Compliance                    |                                                                                                                                                                                                                                               |
| <b>Emissions</b>  | VCCI Class A; EN 55022 Class A; VCCI V-3/2000.04; ICES-003 Class A; AS/NZS CISPR22 Class A; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A                                                                                                                                                                                             |                                                                                                                                                                                                                                               |
| <b>Immunity</b>   | <b>Generic</b>                                                                                                                                                                                                                                                                                                                                   | ETSI EN 300 386 V1.3.3                                                                                                                                                                                                                        |
|                   | <b>EN</b>                                                                                                                                                                                                                                                                                                                                        | EN 55024:1998+ A1:2001 + A2:2003                                                                                                                                                                                                              |
|                   | <b>ESD</b>                                                                                                                                                                                                                                                                                                                                       | EN 61000-4-2; IEC61000-4-2                                                                                                                                                                                                                    |
|                   | <b>Radiated</b>                                                                                                                                                                                                                                                                                                                                  | EN 61000-4-3; IEC61000-4-3                                                                                                                                                                                                                    |
|                   | <b>EFT/Burst</b>                                                                                                                                                                                                                                                                                                                                 | EN 61000-4-4; IEC61000-4-4                                                                                                                                                                                                                    |
|                   | <b>Surge</b>                                                                                                                                                                                                                                                                                                                                     | EN 61000-4-5; IEC61000-4-5                                                                                                                                                                                                                    |
|                   | <b>Conducted</b>                                                                                                                                                                                                                                                                                                                                 | EN 61000-4-6; IEC61000-4-6                                                                                                                                                                                                                    |
|                   | <b>Power frequency magnetic field</b>                                                                                                                                                                                                                                                                                                            | IEC 61000-4-8; EN61000-4-8                                                                                                                                                                                                                    |
|                   | <b>Voltage dips and interruptions</b>                                                                                                                                                                                                                                                                                                            | EN 61000-4-11; IEC61000-4-11                                                                                                                                                                                                                  |
|                   | <b>Harmonics</b>                                                                                                                                                                                                                                                                                                                                 | EN 61000-3-2; IEC 61000-3-2                                                                                                                                                                                                                   |
|                   | <b>Flicker</b>                                                                                                                                                                                                                                                                                                                                   | EN 61000-3-3; IEC 61000-3-3                                                                                                                                                                                                                   |
| <b>Management</b> | IMC - Intelligent Management Center; command-line interface; out-of-band management (serial RS-232C); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; terminal interface (serial RS-232C); modem interface                                                                                                                            |                                                                                                                                                                                                                                               |
| <b>Services</b>   | Refer to the Hewlett Packard Enterprise website at: <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |                                                                                                                                                                                                                                               |

### HP 12508 AC Switch Chassis (JF431C)

|                                   |                                                                                                                                   |                                                                                             |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| <b>I/O ports and slots</b>        | 8 open module slots<br>Supports a maximum of 384 Gigabit Ethernet ports or 384 1/10GbE ports or 128 40GbE ports, or a combination |                                                                                             |
| <b>Additional ports and slots</b> | 2 MPU (for management modules) slots<br>9 switch fabric slots                                                                     |                                                                                             |
| <b>Physical characteristics</b>   | <b>Dimensions</b>                                                                                                                 | 17.4(d) x 29.13(w) x 38.39(h) in. (44.2 x 73.99 x 97.51 cm) (22U height)                    |
|                                   | <b>Weight</b>                                                                                                                     | 209.44 lb (95 kg)                                                                           |
|                                   | <b>Full configuration weight</b>                                                                                                  | 374.78 lb. (170 kg)                                                                         |
| <b>Memory and processor</b>       | <b>Gigabit Module</b>                                                                                                             | PowerPC @ 667 MHz, 1 GB RAM; Packet buffer size: 512 MB (Ingress, shared by 24 1-GbE ports) |
|                                   | <b>10G Module</b>                                                                                                                 | PowerPC @ 667 MHz, 1 GB RAM; Packet buffer size: 512 MB (Ingress/shared by 2 10GbE ports)   |
|                                   | <b>Management Module</b>                                                                                                          | Quad Core CPU @ 1800 MHz, 512 MB flash, 4 GB compact flash, 8 GB RAM                        |
|                                   | <b>Fabric</b>                                                                                                                     | PowerPC @ 400 MHz, 128 MB RAM                                                               |

## Technical Specifications

|                                   |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                   |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Mounting and enclosure</b>     | Mounts in an EIA-standard 19 in. Telco rack or equipment cabinet                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                   |
| <b>Performance</b>                | <b>Throughput</b>                                                                                                                                                                                                                                                                                                             | up to 3840 Mpps                                                                                                                                                                                                                                   |
|                                   | <b>Routing/Switching capacity</b>                                                                                                                                                                                                                                                                                             | 6120 Gbps                                                                                                                                                                                                                                         |
| <b>Environment</b>                | <b>Operating temperature</b>                                                                                                                                                                                                                                                                                                  | 32°F to 104°F (0°C to 40°C)                                                                                                                                                                                                                       |
|                                   | <b>Operating relative humidity</b>                                                                                                                                                                                                                                                                                            | 5% to 95%, non-condensing                                                                                                                                                                                                                         |
|                                   | <b>Nonoperating/Storage temperature</b>                                                                                                                                                                                                                                                                                       | -40°F to 158°F (-40°C to 70°C)                                                                                                                                                                                                                    |
|                                   | <b>Nonoperating/Storage relative humidity</b>                                                                                                                                                                                                                                                                                 | 5% to 95%, non-condensing                                                                                                                                                                                                                         |
| <b>Electrical characteristics</b> | <b>Frequency</b>                                                                                                                                                                                                                                                                                                              | 50/60 Hz                                                                                                                                                                                                                                          |
|                                   | Achieved Miercom Certified Green Award*                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                   |
|                                   | * Products within this series have achieved sufficient scores in each of the rated criteria to achieve the Miercom Certified Green distinction Award. See the Specifications section of this series for more information.                                                                                                     |                                                                                                                                                                                                                                                   |
|                                   | <b>Description</b>                                                                                                                                                                                                                                                                                                            | 10GbE modules consume half the power compared to competitive products; redundant, scalable, 90% efficient power supplies deliver high reliability in the data center; new ASIC technology has low power consumption when providing rich features. |
|                                   | <b>Maximum heat dissipation</b>                                                                                                                                                                                                                                                                                               | 14587 BTU/hr (15389.29 kJ/hr)                                                                                                                                                                                                                     |
|                                   | <b>Voltage</b>                                                                                                                                                                                                                                                                                                                | 100 - 120 / 200 - 240 VAC, rated (depending on power supply chosen)                                                                                                                                                                               |
|                                   | <b>Maximum power rating</b>                                                                                                                                                                                                                                                                                                   | 4750 W                                                                                                                                                                                                                                            |
|                                   | <b>Notes</b>                                                                                                                                                                                                                                                                                                                  | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.     |
|                                   | <b>Safety</b>                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                   |
|                                   | CE Labeled; cUL Certified; UL Listed; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60825; IEC 60950-1:2001 (with CB Report); CAN/CSA-C22.2 No. 60950-1-03; Anatel; ULAR; GOST; EN 60950-1/A11; FDA 21 CFR Subchapter J; NOM; UL 60950-1:2003; EN 60950-1:2001; ROHS Compliance |                                                                                                                                                                                                                                                   |
| <b>Emissions</b>                  | VCCI Class A; EN 55022 Class A; VCCI V-3/2000.04; ICES-003 Class A; AS/NZS CISPR22 Class A; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A                                                                                                                                                                          |                                                                                                                                                                                                                                                   |
| <b>Immunity</b>                   | <b>Generic</b>                                                                                                                                                                                                                                                                                                                | ETSI EN 300 386 V1.3.3                                                                                                                                                                                                                            |
|                                   | <b>EN</b>                                                                                                                                                                                                                                                                                                                     | EN 55024:1998+ A1:2001 + A2:2003                                                                                                                                                                                                                  |
|                                   | <b>ESD</b>                                                                                                                                                                                                                                                                                                                    | EN 61000-4-2; IEC61000-4-2                                                                                                                                                                                                                        |
|                                   | <b>Radiated</b>                                                                                                                                                                                                                                                                                                               | EN 61000-4-3; IEC61000-4-3                                                                                                                                                                                                                        |
|                                   | <b>EFT/Burst</b>                                                                                                                                                                                                                                                                                                              | EN 61000-4-4; IEC61000-4-4                                                                                                                                                                                                                        |
|                                   | <b>Surge</b>                                                                                                                                                                                                                                                                                                                  | EN 61000-4-5; IEC61000-4-5                                                                                                                                                                                                                        |
|                                   | <b>Conducted</b>                                                                                                                                                                                                                                                                                                              | EN 61000-4-6; IEC61000-4-6                                                                                                                                                                                                                        |
|                                   | <b>Power frequency magnetic field</b>                                                                                                                                                                                                                                                                                         | IEC 61000-4-8; EN61000-4-8                                                                                                                                                                                                                        |
|                                   | <b>Voltage dips and interruptions</b>                                                                                                                                                                                                                                                                                         | EN 61000-4-11; IEC61000-4-11                                                                                                                                                                                                                      |
|                                   | <b>Harmonics</b>                                                                                                                                                                                                                                                                                                              | EN 61000-3-2; IEC 61000-3-2                                                                                                                                                                                                                       |
|                                   | <b>Flicker</b>                                                                                                                                                                                                                                                                                                                | EN 61000-3-3; IEC 61000-3-3                                                                                                                                                                                                                       |

## Technical Specifications

|            |                                                                                                                                                                                                                                                                                                                                                  |  |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Management | IMC - Intelligent Management Center; command-line interface; out-of-band management (serial RS-232C); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; terminal interface (serial RS-232C); modem interface                                                                                                                            |  |
| Services   | Refer to the Hewlett Packard Enterprise website at: <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |  |

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|                                     |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                               |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HP 12508 DC Switch Chassis (JC652A) |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                               |
| I/O ports and slots                 | 8 open module slots<br>Supports a maximum of 384 Gigabit Ethernet ports or 384 1/10GbE ports or 128 40GbE ports, or a combination                                                                                                                                                                                             |                                                                                                                                                                                                                                               |
| Additional ports and slots          | 2 MPU (for management modules) slots<br>9 switch fabric slots                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                               |
| Physical characteristics            | Dimensions                                                                                                                                                                                                                                                                                                                    | 17.4(d) x 29.13(w) x 38.39(h) in. (44.2 x 73.99 x 97.51 cm) (22U height)                                                                                                                                                                      |
|                                     | Weight                                                                                                                                                                                                                                                                                                                        | 209.44 lb (95 kg)                                                                                                                                                                                                                             |
|                                     | Full configuration weight                                                                                                                                                                                                                                                                                                     | 374.78 lb. (170 kg)                                                                                                                                                                                                                           |
| Memory and processor                | Gigabit Module                                                                                                                                                                                                                                                                                                                | PowerPC @ 667 MHz, 1 GB RAM; Packet buffer size: 512 MB (Ingress, shared by 24 1-GbE ports)                                                                                                                                                   |
|                                     | 10G Module                                                                                                                                                                                                                                                                                                                    | PowerPC @ 667 MHz, 1 GB RAM; Packet buffer size: 512 MB (Ingress/shared by 2 10GbE ports)                                                                                                                                                     |
|                                     | Management Module                                                                                                                                                                                                                                                                                                             | Quad Core CPU @ 1800 MHz, 512 MB flash, 4 GB compact flash, 8 GB RAM                                                                                                                                                                          |
|                                     | Fabric                                                                                                                                                                                                                                                                                                                        | PowerPC @ 400 MHz, 128 MB RAM MB                                                                                                                                                                                                              |
| Mounting                            | Mounts in an EIA-standard 19 in. Telco rack or equipment cabinet                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                               |
| Performance                         | Throughput                                                                                                                                                                                                                                                                                                                    | up to 3840 Mpps                                                                                                                                                                                                                               |
|                                     | Routing/Switching capacity                                                                                                                                                                                                                                                                                                    | 6120 Gbps                                                                                                                                                                                                                                     |
| Environment                         | Operating temperature                                                                                                                                                                                                                                                                                                         | 32°F to 104°F (0°C to 40°C)                                                                                                                                                                                                                   |
|                                     | Operating relative humidity                                                                                                                                                                                                                                                                                                   | 5% to 95%, non-condensing                                                                                                                                                                                                                     |
|                                     | Nonoperating/Storage temperature                                                                                                                                                                                                                                                                                              | -40°F to 158°F (-40°C to 70°C)                                                                                                                                                                                                                |
|                                     | Nonoperating/Storage relative humidity                                                                                                                                                                                                                                                                                        | 5% to 95%, non-condensing                                                                                                                                                                                                                     |
| Electrical characteristics          | Maximum heat dissipation                                                                                                                                                                                                                                                                                                      | 14587 BTU/hr (15389.29 kJ/hr)                                                                                                                                                                                                                 |
|                                     | Voltage                                                                                                                                                                                                                                                                                                                       | -48 to -60 VDC, rated (depending on power supply chosen)                                                                                                                                                                                      |
|                                     | Maximum power rating                                                                                                                                                                                                                                                                                                          | 4750 W                                                                                                                                                                                                                                        |
|                                     | Notes                                                                                                                                                                                                                                                                                                                         | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. |
| Safety                              | CE Labeled; cUL Certified; UL Listed; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60825; IEC 60950-1:2001 (with CB Report); CAN/CSA-C22.2 No. 60950-1-03; Anatel; ULAR; GOST; EN 60950-1/A11; FDA 21 CFR Subchapter J; NOM; UL 60950-1:2003; EN 60950-1:2001; ROHS Compliance |                                                                                                                                                                                                                                               |
| Emissions                           | VCCI Class A; EN 55022 Class A; VCCI V-3/2000.04; ICES-003 Class A; AS/NZS CISPR22 Class A; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A                                                                                                                                                                          |                                                                                                                                                                                                                                               |

## Technical Specifications

|                   |                                                                                                                                                                                                                                                                                                                                                  |                                  |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| <b>Immunity</b>   | <b>Generic</b>                                                                                                                                                                                                                                                                                                                                   | ETSI EN 300 386 V1.3.3           |
|                   | <b>EN</b>                                                                                                                                                                                                                                                                                                                                        | EN 55024:1998+ A1:2001 + A2:2003 |
|                   | <b>ESD</b>                                                                                                                                                                                                                                                                                                                                       | EN 61000-4-2; IEC61000-4-2       |
|                   | <b>Radiated</b>                                                                                                                                                                                                                                                                                                                                  | EN 61000-4-3; IEC61000-4-3       |
|                   | <b>EFT/Burst</b>                                                                                                                                                                                                                                                                                                                                 | EN 61000-4-4; IEC61000-4-4       |
|                   | <b>Surge</b>                                                                                                                                                                                                                                                                                                                                     | EN 61000-4-5; IEC61000-4-5       |
|                   | <b>Conducted</b>                                                                                                                                                                                                                                                                                                                                 | EN 61000-4-6; IEC61000-4-6       |
|                   | <b>Power frequency magnetic field</b>                                                                                                                                                                                                                                                                                                            | IEC 61000-4-8; EN61000-4-8       |
|                   | <b>Voltage dips and interruptions</b>                                                                                                                                                                                                                                                                                                            | EN 61000-4-11; IEC61000-4-11     |
|                   | <b>Harmonics</b>                                                                                                                                                                                                                                                                                                                                 | EN 61000-3-2, IEC 61000-3-2      |
|                   | <b>Flicker</b>                                                                                                                                                                                                                                                                                                                                   | EN 61000-3-3, IEC 61000-3-3      |
| <b>Management</b> | IMC - Intelligent Management Center; command-line interface; out-of-band management (serial RS-232C); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; terminal interface (serial RS-232C); modem interface                                                                                                                            |                                  |
| <b>Services</b>   | Refer to the Hewlett Packard Enterprise website at: <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |                                  |

### HP 12518 AC Switch Chassis (JF430C)

|                                   |                                                                                                                                    |                                                                                             |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| <b>I/O ports and slots</b>        | 18 open module slots<br>Supports a maximum of 864 Gigabit Ethernet ports or 864 1/10GbE ports or 288 40GbE ports, or a combination |                                                                                             |
| <b>Additional ports and slots</b> | 2 MPU (for management modules) slots<br>9 switch fabric slots                                                                      |                                                                                             |
| <b>Physical characteristics</b>   | <b>Dimensions</b>                                                                                                                  | 17.4(d) x 29.13(w) x 66.38(h) in. (44.2 x 73.99 x 168.61 cm) (38U height)                   |
|                                   | <b>Weight</b>                                                                                                                      | 352.74 lb (160 kg)                                                                          |
|                                   | <b>Full configuration weight</b>                                                                                                   | 639.33 lb (290 kg)                                                                          |
|                                   | <b>Gigabit Module</b>                                                                                                              | PowerPC @ 667 MHz, 1 GB RAM; Packet buffer size: 512 MB (Ingress, shared by 24 1-GbE ports) |
| <b>Memory and processor</b>       | <b>10G Module</b>                                                                                                                  | PowerPC @ 667 MHz, 1 GB RAM; Packet buffer size: 512 MB (Ingress/shared by 2 10GbE ports)   |
|                                   | <b>Management Module</b>                                                                                                           | Quad Core CPU @ 1800 MHz, 512 MB flash, 4 GB compact flash, 8 GB RAM                        |
|                                   | <b>Fabric</b>                                                                                                                      | PowerPC @ 400 MHz, 128 MB RAM                                                               |
| <b>Mounting and enclosure</b>     | Mounts in an EIA-standard 19 in. Telco rack or equipment cabinet                                                                   |                                                                                             |
| <b>Performance</b>                | <b>Throughput</b>                                                                                                                  | up to 8640 Mpps                                                                             |
|                                   | <b>Routing/Switching capacity</b>                                                                                                  | 13.3 Tbps                                                                                   |
|                                   | <b>Operating temperature</b>                                                                                                       | 32°F to 104°F (0°C to 40°C)                                                                 |
| <b>Environment</b>                | <b>Operating relative humidity</b>                                                                                                 | 5% to 95%, non-condensing                                                                   |
|                                   | <b>Nonoperating/Storage temperature</b>                                                                                            | -40°F to 158°F (-40°C to 70°C)                                                              |
|                                   | <b>Nonoperating/Storage relative humidity</b>                                                                                      | 5% to 95%, non-condensing                                                                   |

## Technical Specifications

|                                   |                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                               |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Electrical characteristics</b> | <b>Frequency</b>                                                                                                                                                                                                                                                                                                                                 | 50/60 Hz                                                                                                                                                                                                                                      |
|                                   | <b>Maximum heat dissipation</b>                                                                                                                                                                                                                                                                                                                  | 32859 BTU/hr (34666.24 kJ/hr)                                                                                                                                                                                                                 |
|                                   | <b>Voltage</b>                                                                                                                                                                                                                                                                                                                                   | 100 - 120 / 200 - 240 VAC, rated<br>(depending on power supply chosen)                                                                                                                                                                        |
|                                   | <b>Maximum power rating</b>                                                                                                                                                                                                                                                                                                                      | 10700 W                                                                                                                                                                                                                                       |
|                                   | <b>Notes</b>                                                                                                                                                                                                                                                                                                                                     | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. |
| <b>Safety</b>                     | CE Labeled; cUL Certified; UL Listed; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60825; IEC 60950-1:2001 (with CB Report); CAN/CSA-C22.2 No. 60950-1-03; Anatel; ULAR; GOST; EN 60950-1/A11; FDA 21 CFR Subchapter J; NOM; UL 60950-1:2003; EN 60950-1:2001; ROHS Compliance                    |                                                                                                                                                                                                                                               |
| <b>Emissions</b>                  | VCCI Class A; EN 55022 Class A; VCCI V-3/2000.04; ICES-003 Class A; AS/NZS CISPR22 Class A; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A                                                                                                                                                                                             |                                                                                                                                                                                                                                               |
| <b>Immunity</b>                   | <b>Generic</b>                                                                                                                                                                                                                                                                                                                                   | ETSI EN 300 386 V1.3.3                                                                                                                                                                                                                        |
|                                   | <b>EN</b>                                                                                                                                                                                                                                                                                                                                        | EN 55024:1998+ A1:2001 + A2:2003                                                                                                                                                                                                              |
|                                   | <b>ESD</b>                                                                                                                                                                                                                                                                                                                                       | EN 61000-4-2; IEC61000-4-2                                                                                                                                                                                                                    |
|                                   | <b>Radiated</b>                                                                                                                                                                                                                                                                                                                                  | EN 61000-4-3; IEC61000-4-3                                                                                                                                                                                                                    |
|                                   | <b>EFT/Burst</b>                                                                                                                                                                                                                                                                                                                                 | EN 61000-4-4; IEC61000-4-4                                                                                                                                                                                                                    |
|                                   | <b>Surge</b>                                                                                                                                                                                                                                                                                                                                     | EN 61000-4-5; IEC61000-4-5                                                                                                                                                                                                                    |
|                                   | <b>Conducted</b>                                                                                                                                                                                                                                                                                                                                 | EN 61000-4-6; IEC61000-4-6                                                                                                                                                                                                                    |
|                                   | <b>Power frequency magnetic field</b>                                                                                                                                                                                                                                                                                                            | IEC 61000-4-8; EN61000-4-8                                                                                                                                                                                                                    |
|                                   | <b>Voltage dips and interruptions</b>                                                                                                                                                                                                                                                                                                            | EN 61000-4-11; IEC61000-4-11                                                                                                                                                                                                                  |
|                                   | <b>Harmonics</b>                                                                                                                                                                                                                                                                                                                                 | EN 61000-3-2, IEC 61000-3-2                                                                                                                                                                                                                   |
|                                   | <b>Flicker</b>                                                                                                                                                                                                                                                                                                                                   | EN 61000-3-3, IEC 61000-3-3                                                                                                                                                                                                                   |
| <b>Management</b>                 | IMC - Intelligent Management Center; command-line interface; out-of-band management (serial RS-232C); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; terminal interface (serial RS-232C); modem interface                                                                                                                            |                                                                                                                                                                                                                                               |
| <b>Services</b>                   | Refer to the Hewlett Packard Enterprise website at: <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |                                                                                                                                                                                                                                               |

### HP 12518 DC Switch Chassis (JC653A)

|                                   |                                                                                                            |                                                                                             |
|-----------------------------------|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| <b>I/O ports and slots</b>        | 18 open module slots                                                                                       |                                                                                             |
|                                   | Supports a maximum of 864 Gigabit Ethernet ports or 864 1/10GbE ports or 288 40GbE ports, or a combination |                                                                                             |
| <b>Additional ports and slots</b> | 2 MPU (for management modules) slots                                                                       |                                                                                             |
|                                   | 9 switch fabric slots                                                                                      |                                                                                             |
| <b>Physical characteristics</b>   | <b>Dimensions</b>                                                                                          | 17.4(d) x 29.13(w) x 66.38(h) in. (44.2 x 73.99 x 168.61 cm) (38U height)                   |
|                                   | <b>Weight</b>                                                                                              | 352.74 lb (160 kg)                                                                          |
|                                   | <b>Full configuration weight</b>                                                                           | 639.33 lb (290 kg)                                                                          |
| <b>Memory and processor</b>       | <b>Gigabit Module</b>                                                                                      | PowerPC @ 667 MHz, 1 GB RAM; Packet buffer size: 512 MB (Ingress, shared by 24 1-GbE ports) |

## Technical Specifications

|                                   |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                               |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   | <b>10G Module</b>                                                                                                                                                                                                                                                                                                             | PowerPC @ 667 MHz, 1 GB RAM; Packet buffer size: 512 MB (Ingress/shared by 2 10GbE ports)                                                                                                                                                     |
|                                   | <b>Management Module</b>                                                                                                                                                                                                                                                                                                      | Quad Core CPU @ 1800 MHz, 512 MB flash, 4 GB compact flash, 8 GB RAM                                                                                                                                                                          |
|                                   | <b>Fabric</b>                                                                                                                                                                                                                                                                                                                 | PowerPC @ 400 MHz, 128 MB RAM                                                                                                                                                                                                                 |
| <b>Mounting and enclosure</b>     | Mounts in an EIA-standard                                                                                                                                                                                                                                                                                                     | 19 in. Telco rack or equipment cabinet                                                                                                                                                                                                        |
| <b>Performance</b>                | <b>Throughput</b>                                                                                                                                                                                                                                                                                                             | up to 8640 Mpps                                                                                                                                                                                                                               |
|                                   | <b>Routing/Switching capacity</b>                                                                                                                                                                                                                                                                                             | 13.3 Tbps                                                                                                                                                                                                                                     |
| <b>Environment</b>                | <b>Operating temperature</b>                                                                                                                                                                                                                                                                                                  | 32°F to 104°F (0°C to 40°C)                                                                                                                                                                                                                   |
|                                   | <b>Operating relative humidity</b>                                                                                                                                                                                                                                                                                            | 5% to 95%, non-condensing                                                                                                                                                                                                                     |
|                                   | <b>Nonoperating/Storage temperature</b>                                                                                                                                                                                                                                                                                       | -40°F to 158°F (-40°C to 70°C)                                                                                                                                                                                                                |
|                                   | <b>Nonoperating/Storage relative humidity</b>                                                                                                                                                                                                                                                                                 | 5% to 95%, non-condensing                                                                                                                                                                                                                     |
| <b>Electrical characteristics</b> | <b>Maximum heat dissipation</b>                                                                                                                                                                                                                                                                                               | 32859 BTU/hr (34666.24 kJ/hr)                                                                                                                                                                                                                 |
|                                   | <b>Maximum power rating</b>                                                                                                                                                                                                                                                                                                   | 10700 W                                                                                                                                                                                                                                       |
|                                   | <b>Voltage</b>                                                                                                                                                                                                                                                                                                                | -48 to -60 VDC, rated (depending on power supply chosen)                                                                                                                                                                                      |
|                                   | <b>Notes</b>                                                                                                                                                                                                                                                                                                                  | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. |
| <b>Safety</b>                     | CE Labeled; cUL Certified; UL Listed; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60825; IEC 60950-1:2001 (with CB Report); CAN/CSA-C22.2 No. 60950-1-03; Anatel; ULAR; GOST; EN 60950-1/A11; FDA 21 CFR Subchapter J; NOM; UL 60950-1:2003; EN 60950-1:2001; ROHS Compliance |                                                                                                                                                                                                                                               |
| <b>Emissions</b>                  | VCCI Class A; EN 55022 Class A; VCCI V-3/2000.04; ICES-003 Class A; AS/NZS CISPR22 Class A; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A                                                                                                                                                                          |                                                                                                                                                                                                                                               |
| <b>Immunity</b>                   | <b>Generic</b>                                                                                                                                                                                                                                                                                                                | ETSI EN 300 386 V1.3.3                                                                                                                                                                                                                        |
|                                   | <b>EN</b>                                                                                                                                                                                                                                                                                                                     | EN 55024:1998+ A1:2001 + A2:2003                                                                                                                                                                                                              |
|                                   | <b>ESD</b>                                                                                                                                                                                                                                                                                                                    | EN 61000-4-2; IEC61000-4-2                                                                                                                                                                                                                    |
|                                   | <b>Radiated</b>                                                                                                                                                                                                                                                                                                               | EN 61000-4-3; IEC61000-4-3                                                                                                                                                                                                                    |
|                                   | <b>EFT/Burst</b>                                                                                                                                                                                                                                                                                                              | EN 61000-4-4; IEC61000-4-4                                                                                                                                                                                                                    |
|                                   | <b>Surge</b>                                                                                                                                                                                                                                                                                                                  | EN 61000-4-5; IEC61000-4-5                                                                                                                                                                                                                    |
|                                   | <b>Conducted</b>                                                                                                                                                                                                                                                                                                              | EN 61000-4-6; IEC61000-4-6                                                                                                                                                                                                                    |
|                                   | <b>Power frequency magnetic field</b>                                                                                                                                                                                                                                                                                         | IEC 61000-4-8; EN61000-4-8                                                                                                                                                                                                                    |
|                                   | <b>Voltage dips and interruptions</b>                                                                                                                                                                                                                                                                                         | EN 61000-4-11; IEC61000-4-11                                                                                                                                                                                                                  |
|                                   | <b>Harmonics</b>                                                                                                                                                                                                                                                                                                              | EN 61000-3-2, IEC 61000-3-2                                                                                                                                                                                                                   |
|                                   | <b>Flicker</b>                                                                                                                                                                                                                                                                                                                | EN 61000-3-3, IEC 61000-3-3                                                                                                                                                                                                                   |
| <b>Management</b>                 | IMC - Intelligent Management Center; command-line interface; out-of-band management (serial RS-232C); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; terminal interface (serial RS-232C); modem interface                                                                                                         |                                                                                                                                                                                                                                               |
| <b>Services</b>                   | Refer to the Hewlett Packard Enterprise website at: <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for                                                                                                                                                                           |                                                                                                                                                                                                                                               |

## Technical Specifications

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 12508E AC Switch Chassis (JG782A)

|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>I/O ports and slots</b>        | 8 open module slots<br>Supports a maximum of 384 Gigabit Ethernet ports or 384 1/10GbE ports or 128 40GbE ports                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Additional ports and slots</b> | 2 MPU (for management modules) slots<br>9 switch fabric slots                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Physical characteristics</b>   | <b>Dimensions</b> 17.4(w) x 29.13(d) x 38.39(h) in (44.2 x 74.0 x 97.51 cm) (22U height)<br><b>Weight</b> 242.51 lb (110 kg)<br><b>Full configuration weight</b> 374.78 lb (170 kg)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Memory and processor</b>       | <b>Gigabit Module</b> PowerPC @ 667 MHz, 1 GB RAM; Packet buffer size: 512 MB (Ingress, shared by 24 1-GbE ports)<br><b>10G Module</b> PowerPC @ 667 MHz, 1 GB RAM; Packet buffer size: 512 MB (Ingress/shared by 2 10GbE ports)<br><b>Management Module</b> Quad Core CPU @ 1800 MHz, 512 MB flash, 4 GB compact flash, 8 GB RAM<br><b>Fabric</b> PowerPC @ 400 MHz, 128 MB RAM                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Mounting and enclosure</b>     | Mounts in an EIA-standard 19 in. Telco rack or equipment cabinet                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Performance</b>                | <b>Throughput</b> up to 4800 Mpps<br><b>Routing/Switching capacity</b> 10.8 Tbps                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Environment</b>                | <b>Operating temperature</b> 32°F to 104°F (0°C to 40°C)<br><b>Operating relative humidity</b> 5% to 95%, non-condensing<br><b>Nonoperating/Storage temperature</b> -40°F to 158°F (-40°C to 70°C)<br><b>Nonoperating/Storage relative humidity</b> 5% to 95%, non-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Electrical characteristics</b> | <b>Frequency</b> 50/60 Hz<br>Achieved Miercom Certified Green Award<br><b>Description</b> 10GbE modules consume half the power compared to competitive products; redundant, scalable, 90% efficient power supplies deliver high reliability in the data center; new ASIC technology has low power consumption when providing rich features.<br><b>Maximum heat dissipation</b> 14587 BTU/hr (15389.29 kJ/hr)<br><b>Voltage</b> 100 - 120 / 200 - 240 VAC, rated (depending on power supply chosen)<br><b>Maximum power rating</b> 4750 W<br><b>Notes</b> Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. |
| <b>Safety</b>                     | CE Labeled; cUL Certified; UL Listed; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60825; IEC 60950-1:2001 (with CB Report); CAN/CSA-C22.2 No. 60950-1-03; Anatel; ULAR; GOST; EN 60950-1/A11; FDA 21 CFR Subchapter J; NOM; UL 60950-1:2003; EN 60950-1:2001; ROHS Compliance                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Emissions</b>                  | VCCI Class A; EN 55022 Class A; VCCI V-3/2000.04; ICES-003 Class A; AS/NZS CISPR22 Class A; EMC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

## Technical Specifications

|                   |                                                                                                                                                                                                                                                                                                                                                  |                                  |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| <b>Immunity</b>   | Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A                                                                                                                                                                                                                                                                                             |                                  |
|                   | <b>Generic</b>                                                                                                                                                                                                                                                                                                                                   | ETSI EN 300 386 V1.3.3           |
|                   | <b>EN</b>                                                                                                                                                                                                                                                                                                                                        | EN 55024:1998+ A1:2001 + A2:2003 |
|                   | <b>ESD</b>                                                                                                                                                                                                                                                                                                                                       | EN 61000-4-2; IEC61000-4-2       |
|                   | <b>Radiated</b>                                                                                                                                                                                                                                                                                                                                  | EN 61000-4-3; IEC61000-4-3       |
|                   | <b>EFT/Burst</b>                                                                                                                                                                                                                                                                                                                                 | EN 61000-4-4; IEC61000-4-4       |
|                   | <b>Surge</b>                                                                                                                                                                                                                                                                                                                                     | EN 61000-4-5; IEC61000-4-5       |
|                   | <b>Conducted</b>                                                                                                                                                                                                                                                                                                                                 | EN 61000-4-6; IEC61000-4-6       |
|                   | <b>Power frequency magnetic field</b>                                                                                                                                                                                                                                                                                                            | IEC 61000-4-8; EN61000-4-8       |
|                   | <b>Voltage dips and interruptions</b>                                                                                                                                                                                                                                                                                                            | EN 61000-4-11; IEC61000-4-11     |
|                   | <b>Harmonics</b>                                                                                                                                                                                                                                                                                                                                 | EN 61000-3-2, IEC 61000-3-2      |
|                   | <b>Flicker</b>                                                                                                                                                                                                                                                                                                                                   | EN 61000-3-3, IEC 61000-3-3      |
| <b>Management</b> | IMC - Intelligent Management Center; command-line interface; out-of-band management (serial RS-232C); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; terminal interface (serial RS-232C); modem interface                                                                                                                            |                                  |
| <b>Services</b>   | Refer to the Hewlett Packard Enterprise website at: <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |                                  |

### HPE FlexFabric 12508E DC Switch Chassis (JG783A)

|                                   |                                                                                                                 |                                                                                             |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| <b>I/O ports and slots</b>        | 8 open module slots<br>Supports a maximum of 384 Gigabit Ethernet ports or 384 1/10GbE ports or 128 40GbE ports |                                                                                             |
| <b>Additional ports and slots</b> | 2 MPU (for management modules) slots<br>9 switch fabric slots                                                   |                                                                                             |
| <b>Physical characteristics</b>   | <b>Dimensions</b>                                                                                               | 17.4(w) x 29.13(d) x 38.39(h) in (44.2 x 73.99 x 97.51 cm) (22U height)                     |
|                                   | <b>Weight</b>                                                                                                   | 209.44 lb (95 kg)                                                                           |
|                                   | <b>Full configuration weight</b>                                                                                | 374.78 lb (170 kg)                                                                          |
|                                   | <b>Memory and processor</b>                                                                                     |                                                                                             |
|                                   | <b>Gigabit Module</b>                                                                                           | PowerPC @ 667 MHz, 1 GB RAM; Packet buffer size: 512 MB (Ingress, shared by 24 1-GbE ports) |
|                                   | <b>10G Module</b>                                                                                               | PowerPC @ 667 MHz, 1 GB RAM; Packet buffer size: 512 MB (Ingress/shared by 2 10GbE ports)   |
|                                   | <b>Management Module</b>                                                                                        | Quad Core CPU @ 1800 MHz, 512 MB flash, 4 GB compact flash, 8 GB RAM                        |
|                                   | <b>Fabric</b>                                                                                                   | PowerPC @ 400 MHz, 128 MB RAM                                                               |
| <b>Mounting and enclosure</b>     | Mounts in an EIA-standard 19 in. Telco rack or equipment cabinet                                                |                                                                                             |
| <b>Performance</b>                | <b>Throughput</b>                                                                                               | up to 4800 Mpps                                                                             |
|                                   | <b>Routing/Switching capacity</b>                                                                               | 10.8 Tbps                                                                                   |
|                                   | <b>Environment</b>                                                                                              |                                                                                             |
|                                   | <b>Operating temperature</b>                                                                                    | 32°F to 104°F (0°C to 40°C)                                                                 |
|                                   | <b>Operating relative humidity</b>                                                                              | 5% to 95%, non-condensing                                                                   |
|                                   | <b>Nonoperating/Storage temperature</b>                                                                         | -40°F to 158°F (-40°C to 70°C)                                                              |
|                                   | <b>Nonoperating/Storage relative humidity</b>                                                                   | 5% to 95%, non-condensing                                                                   |

## Technical Specifications

|                                   |                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                               |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Electrical characteristics</b> | <b>Maximum heat dissipation</b>                                                                                                                                                                                                                                                                                                                  | 14587 BTU/hr (15389.29 kJ/hr)                                                                                                                                                                                                                 |
|                                   | <b>Maximum power rating</b>                                                                                                                                                                                                                                                                                                                      | 4750 W                                                                                                                                                                                                                                        |
|                                   | <b>Voltage</b>                                                                                                                                                                                                                                                                                                                                   | -48 to -60 VDC, rated<br>(depending on power supply chosen)                                                                                                                                                                                   |
|                                   | <b>Notes</b>                                                                                                                                                                                                                                                                                                                                     | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. |
| <b>Safety</b>                     | CE Labeled; cUL Certified; UL Listed; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60825; IEC 60950-1:2001 (with CB Report); CAN/CSA-C22.2 No. 60950-1-03; Anatel; ULAR; GOST; EN 60950-1/A11; FDA 21 CFR Subchapter J; NOM; UL 60950-1:2003; EN 60950-1:2001; ROHS Compliance                    |                                                                                                                                                                                                                                               |
| <b>Emissions</b>                  | VCCI Class A; EN 55022 Class A; VCCI V-3/2000.04; ICES-003 Class A; AS/NZS CISPR22 Class A; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A                                                                                                                                                                                             |                                                                                                                                                                                                                                               |
| <b>Immunity</b>                   | <b>Generic</b>                                                                                                                                                                                                                                                                                                                                   | ETSI EN 300 386 V1.3.3                                                                                                                                                                                                                        |
|                                   | <b>EN</b>                                                                                                                                                                                                                                                                                                                                        | EN 55024:1998+ A1:2001 + A2:2003                                                                                                                                                                                                              |
|                                   | <b>ESD</b>                                                                                                                                                                                                                                                                                                                                       | EN 61000-4-2; IEC61000-4-2                                                                                                                                                                                                                    |
|                                   | <b>Radiated</b>                                                                                                                                                                                                                                                                                                                                  | EN 61000-4-3; IEC61000-4-3                                                                                                                                                                                                                    |
|                                   | <b>EFT/Burst</b>                                                                                                                                                                                                                                                                                                                                 | EN 61000-4-4; IEC61000-4-4                                                                                                                                                                                                                    |
|                                   | <b>Surge</b>                                                                                                                                                                                                                                                                                                                                     | EN 61000-4-5; IEC61000-4-5                                                                                                                                                                                                                    |
|                                   | <b>Conducted</b>                                                                                                                                                                                                                                                                                                                                 | EN 61000-4-6; IEC61000-4-6                                                                                                                                                                                                                    |
|                                   | <b>Power frequency magnetic field</b>                                                                                                                                                                                                                                                                                                            | IEC 61000-4-8; EN61000-4-8                                                                                                                                                                                                                    |
|                                   | <b>Voltage dips and interruptions</b>                                                                                                                                                                                                                                                                                                            | EN 61000-4-11; IEC61000-4-11                                                                                                                                                                                                                  |
|                                   | <b>Harmonics</b>                                                                                                                                                                                                                                                                                                                                 | EN 61000-3-2, IEC 61000-3-2                                                                                                                                                                                                                   |
|                                   | <b>Flicker</b>                                                                                                                                                                                                                                                                                                                                   | EN 61000-3-3, IEC 61000-3-3                                                                                                                                                                                                                   |
| <b>Management</b>                 | IMC - Intelligent Management Center; command-line interface; out-of-band management (serial RS-232C); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; terminal interface (serial RS-232C); modem interface                                                                                                                            |                                                                                                                                                                                                                                               |
| <b>Services</b>                   | Refer to the Hewlett Packard Enterprise website at: <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |                                                                                                                                                                                                                                               |

### HPE FlexFabric 12518E AC Switch Chassis (JG784A)

|                                   |                                                                                                            |                                                                                             |
|-----------------------------------|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| <b>I/O ports and slots</b>        | 18 open module slots                                                                                       |                                                                                             |
|                                   | Supports a maximum of 864 Gigabit Ethernet ports or 864 1/10GbE ports or 288 40GbE ports, or a combination |                                                                                             |
| <b>Additional ports and slots</b> | 2 MPU (for management modules) slots                                                                       |                                                                                             |
|                                   | 9 switch fabric slots                                                                                      |                                                                                             |
| <b>Physical characteristics</b>   | <b>Dimensions</b>                                                                                          | 17.4(w) x 29.13(d) x 66.38(h) in (44.2 x 73.99 x 168.61 cm) (38U height)                    |
|                                   | <b>Weight</b>                                                                                              | 352.74 lb (160 kg)                                                                          |
|                                   | <b>Full configuration weight</b>                                                                           | 639.33 lb (290 kg)                                                                          |
| <b>Memory and processor</b>       | <b>Gigabit Module</b>                                                                                      | PowerPC @ 667 MHz, 1 GB RAM; Packet buffer size: 512 MB (Ingress, shared by 24 1-GbE ports) |
|                                   | <b>10G Module</b>                                                                                          | PowerPC @ 667 MHz, 1 GB RAM; Packet buffer size: 512 MB (Ingress/shared by 2 10GbE ports)   |

## Technical Specifications

|                                   |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                               |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   | <b>Management Module</b>                                                                                                                                                                                                                                                                                                      | Quad Core CPU @ 1800 MHz, 512 MB flash, 4 GB compact flash, 8 GB RAM                                                                                                                                                                          |
|                                   | <b>Fabric</b>                                                                                                                                                                                                                                                                                                                 | PowerPC @ 400 MHz, 128 MB RAM                                                                                                                                                                                                                 |
| <b>Mounting and enclosure</b>     | Mounts in an EIA-standard                                                                                                                                                                                                                                                                                                     | 19 in. Telco rack or equipment cabinet                                                                                                                                                                                                        |
| <b>Performance</b>                | <b>Throughput</b>                                                                                                                                                                                                                                                                                                             | up to 10.8 Bpps                                                                                                                                                                                                                               |
|                                   | <b>Routing/Switching capacity</b>                                                                                                                                                                                                                                                                                             | 24.3 Tbps                                                                                                                                                                                                                                     |
| <b>Environment</b>                | <b>Operating temperature</b>                                                                                                                                                                                                                                                                                                  | 32°F to 104°F (0°C to 40°C)                                                                                                                                                                                                                   |
|                                   | <b>Operating relative humidity</b>                                                                                                                                                                                                                                                                                            | 5% to 95%, non-condensing                                                                                                                                                                                                                     |
|                                   | <b>Nonoperating/Storage temperature</b>                                                                                                                                                                                                                                                                                       | -40°F to 158°F (-40°C to 70°C)                                                                                                                                                                                                                |
|                                   | <b>Nonoperating/Storage relative humidity</b>                                                                                                                                                                                                                                                                                 | 5% to 95%, non-condensing                                                                                                                                                                                                                     |
| <b>Electrical characteristics</b> | <b>Frequency</b>                                                                                                                                                                                                                                                                                                              | 50/60 Hz                                                                                                                                                                                                                                      |
|                                   | <b>Maximum heat dissipation</b>                                                                                                                                                                                                                                                                                               | 32859 BTU/hr (34666.24 kJ/hr)                                                                                                                                                                                                                 |
|                                   | <b>Voltage</b>                                                                                                                                                                                                                                                                                                                | 100 - 120 / 200 - 240 VAC, rated (depending on power supply chosen)                                                                                                                                                                           |
|                                   | <b>Maximum power rating</b>                                                                                                                                                                                                                                                                                                   | 10700 W                                                                                                                                                                                                                                       |
|                                   | <b>Notes</b>                                                                                                                                                                                                                                                                                                                  | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. |
| <b>Safety</b>                     | CE Labeled; cUL Certified; UL Listed; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60825; IEC 60950-1:2001 (with CB Report); CAN/CSA-C22.2 No. 60950-1-03; Anatel; ULAR; GOST; EN 60950-1/A11; FDA 21 CFR Subchapter J; NOM; UL 60950-1:2003; EN 60950-1:2001; ROHS Compliance |                                                                                                                                                                                                                                               |
| <b>Emissions</b>                  | VCCI Class A; EN 55022 Class A; VCCI V-3/2000.04; ICES-003 Class A; AS/NZS CISPR22 Class A; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A                                                                                                                                                                          |                                                                                                                                                                                                                                               |
| <b>Immunity</b>                   | <b>Generic</b>                                                                                                                                                                                                                                                                                                                | ETSI EN 300 386 V1.3.3                                                                                                                                                                                                                        |
|                                   | <b>EN</b>                                                                                                                                                                                                                                                                                                                     | EN 55024:1998+ A1:2001 + A2:2003                                                                                                                                                                                                              |
|                                   | <b>ESD</b>                                                                                                                                                                                                                                                                                                                    | EN 61000-4-2; IEC61000-4-2                                                                                                                                                                                                                    |
|                                   | <b>Radiated</b>                                                                                                                                                                                                                                                                                                               | EN 61000-4-3; IEC61000-4-3                                                                                                                                                                                                                    |
|                                   | <b>EFT/Burst</b>                                                                                                                                                                                                                                                                                                              | EN 61000-4-4; IEC61000-4-4                                                                                                                                                                                                                    |
|                                   | <b>Surge</b>                                                                                                                                                                                                                                                                                                                  | EN 61000-4-5; IEC61000-4-5                                                                                                                                                                                                                    |
|                                   | <b>Conducted</b>                                                                                                                                                                                                                                                                                                              | EN 61000-4-6; IEC61000-4-6                                                                                                                                                                                                                    |
|                                   | <b>Power frequency magnetic field</b>                                                                                                                                                                                                                                                                                         | IEC 61000-4-8; EN61000-4-8                                                                                                                                                                                                                    |
|                                   | <b>Voltage dips and interruptions</b>                                                                                                                                                                                                                                                                                         | EN 61000-4-11; IEC61000-4-11                                                                                                                                                                                                                  |
|                                   | <b>Harmonics</b>                                                                                                                                                                                                                                                                                                              | EN 61000-3-2, IEC 61000-3-2                                                                                                                                                                                                                   |
|                                   | <b>Flicker</b>                                                                                                                                                                                                                                                                                                                | EN 61000-3-3, IEC 61000-3-3                                                                                                                                                                                                                   |
| <b>Management</b>                 | IMC - Intelligent Management Center; command-line interface; out-of-band management (serial RS-232C); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; terminal interface (serial RS-232C); modem interface                                                                                                         |                                                                                                                                                                                                                                               |
| <b>Services</b>                   | Refer to the Hewlett Packard Enterprise website at: <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for                                                                                                                                                                           |                                                                                                                                                                                                                                               |

## Technical Specifications

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 12518E DC Switch Chassis (JG785A)

|                                   |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                               |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>I/O ports and slots</b>        | 18 open module slots<br>Supports a maximum of 864 Gigabit Ethernet ports or 864 1/10GbE ports or 288 40GbE ports, or a combination                                                                                                                                                                                            |                                                                                                                                                                                                                                               |
| <b>Additional ports and slots</b> | 2 MPU (for management modules) slots<br>9 switch fabric slots                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                               |
| <b>Physical characteristics</b>   | <b>Dimensions</b>                                                                                                                                                                                                                                                                                                             | 17.4(w) x 29.13(d) x 66.38(h) in (44.2 x 73.99 x 168.61 cm) (38U height)                                                                                                                                                                      |
|                                   | <b>Weight</b>                                                                                                                                                                                                                                                                                                                 | 352.74 lb (160 kg)                                                                                                                                                                                                                            |
|                                   | <b>Full configuration weight</b>                                                                                                                                                                                                                                                                                              | 639.33 lb (290 kg)                                                                                                                                                                                                                            |
|                                   | <b>Gigabit Module</b>                                                                                                                                                                                                                                                                                                         | PowerPC @ 667 MHz, 1 GB RAM; Packet buffer size: 512 MB (Ingress, shared by 24 1-GbE ports)                                                                                                                                                   |
| <b>Memory and processor</b>       | <b>10G Module</b>                                                                                                                                                                                                                                                                                                             | PowerPC @ 667 MHz, 1 GB RAM; Packet buffer size: 512 MB (Ingress/shared by 2 10GbE ports)                                                                                                                                                     |
|                                   | <b>Management Module</b>                                                                                                                                                                                                                                                                                                      | Quad Core CPU @ 1800 MHz, 512 MB flash, 4 GB compact flash, 8 GB RAM                                                                                                                                                                          |
|                                   | <b>Fabric</b>                                                                                                                                                                                                                                                                                                                 | PowerPC @ 400 MHz, 128 MB RAM                                                                                                                                                                                                                 |
| <b>Mounting and enclosure</b>     | Mounts in an EIA-standard 19 in. Telco rack or equipment cabinet                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                               |
| <b>Performance</b>                | <b>Throughput</b>                                                                                                                                                                                                                                                                                                             | up to 10.8 Bpps                                                                                                                                                                                                                               |
|                                   | <b>Routing/Switching capacity</b>                                                                                                                                                                                                                                                                                             | 24.3 Tbps                                                                                                                                                                                                                                     |
| <b>Environment</b>                | <b>Operating temperature</b>                                                                                                                                                                                                                                                                                                  | 32°F to 104°F (0°C to 40°C)                                                                                                                                                                                                                   |
|                                   | <b>Operating relative humidity</b>                                                                                                                                                                                                                                                                                            | 5% to 95%, non-condensing                                                                                                                                                                                                                     |
|                                   | <b>Nonoperating/Storage temperature</b>                                                                                                                                                                                                                                                                                       | -40°F to 158°F (-40°C to 70°C)                                                                                                                                                                                                                |
|                                   | <b>Nonoperating/Storage relative humidity</b>                                                                                                                                                                                                                                                                                 | 5% to 95%, non-condensing                                                                                                                                                                                                                     |
| <b>Electrical characteristics</b> | <b>Maximum heat dissipation</b>                                                                                                                                                                                                                                                                                               | 32859 BTU/hr (34666.24 kJ/hr)                                                                                                                                                                                                                 |
|                                   | <b>Maximum power rating</b>                                                                                                                                                                                                                                                                                                   | 10700 W                                                                                                                                                                                                                                       |
|                                   | <b>Voltage</b>                                                                                                                                                                                                                                                                                                                | -48 to -60 VDC, rated<br>(depending on power supply chosen)                                                                                                                                                                                   |
|                                   | <b>Notes</b>                                                                                                                                                                                                                                                                                                                  | Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. |
| <b>Safety</b>                     | CE Labeled; cUL Certified; UL Listed; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60825; IEC 60950-1:2001 (with CB Report); CAN/CSA-C22.2 No. 60950-1-03; Anatel; ULAR; GOST; EN 60950-1/A11; FDA 21 CFR Subchapter J; NOM; UL 60950-1:2003; EN 60950-1:2001; ROHS Compliance |                                                                                                                                                                                                                                               |
| <b>Emissions</b>                  | VCCI Class A; EN 55022 Class A; VCCI V-3/2000.04; ICES-003 Class A; AS/NZS CISPR22 Class A; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A                                                                                                                                                                          |                                                                                                                                                                                                                                               |
| <b>Immunity</b>                   | <b>Generic</b>                                                                                                                                                                                                                                                                                                                | ETSI EN 300 386 V1.3.3                                                                                                                                                                                                                        |
|                                   | <b>EN</b>                                                                                                                                                                                                                                                                                                                     | EN 55024:1998+ A1:2001 + A2:2003                                                                                                                                                                                                              |

## Technical Specifications

|                                       |                              |
|---------------------------------------|------------------------------|
| <b>ESD</b>                            | EN 61000-4-2; IEC61000-4-2   |
| <b>Radiated</b>                       | EN 61000-4-3; IEC61000-4-3   |
| <b>EFT/Burst</b>                      | EN 61000-4-4; IEC61000-4-4   |
| <b>Surge</b>                          | EN 61000-4-5; IEC61000-4-5   |
| <b>Conducted</b>                      | EN 61000-4-6; IEC61000-4-6   |
| <b>Power frequency magnetic field</b> | IEC 61000-4-8; EN61000-4-8   |
| <b>Voltage dips and interruptions</b> | EN 61000-4-11; IEC61000-4-11 |
| <b>Harmonics</b>                      | EN 61000-3-2, IEC 61000-3-2  |
| <b>Flicker</b>                        | EN 61000-3-3, IEC 61000-3-3  |

**Management** IMC - Intelligent Management Center; command-line interface; out-of-band management (serial RS-232C); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; terminal interface (serial RS-232C); modem interface

**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

### Standards and protocols BGP

(applies to all products in series)

|                                                   |                                            |
|---------------------------------------------------|--------------------------------------------|
| RFC 1657 Definitions of Managed Objects for BGPv4 | RFC 2466 ICMPv6 MIB                        |
| RFC 1771 BGPv4                                    | RFC 2571 SNMP Framework MIB                |
| RFC 1772 Application of the BGP                   | RFC 2572 SNMP-MPD MIB                      |
| RFC 1773 Experience with the BGP-4 Protocol       | RFC 2573 SNMP-Target MIB                   |
| RFC 1774 BGP-4 Protocol Analysis                  | RFC 2613 SMON MIB                          |
| RFC 1997 BGP Communities Attribute                | RFC 2618 RADIUS Client MIB                 |
| RFC 1998 PPP Gandalf FZA Compression Protocol     | RFC 2620 RADIUS Accounting MIB             |
| RFC 2385 BGP Session Protection via TCP MD5       | RFC 2665 Ethernet-Like-MIB                 |
| RFC 2439 BGP Route Flap Damping                   | RFC 2674 802.1p and IEEE 802.1Q Bridge MIB |
| RFC 2796 BGP Route Reflection                     | RFC 2737 Entity MIB (Version 2)            |
| RFC 2842 Capability Advertisement with BGP-4      | RFC 2787 VRRP MIB                          |
| RFC 2858 BGP-4 Multi-Protocol Extensions          | RFC 2819 RMON MIB                          |
| RFC 2918 Route Refresh Capability                 | RFC 2863 The Interfaces Group MIB          |

### Denial of service protection

|                                                             |                                    |
|-------------------------------------------------------------|------------------------------------|
| RFC 2267 Network Ingress Filtering                          | RFC 2925 Ping MIB                  |
| Automatic Filtering of well known Denial of Service Packets | RFC 2932IP (Multicast Routing MIB) |
| CPU DoS Protection                                          | RFC 2933 IGMP MIB                  |
| Rate Limiting by ACLs                                       | RFC 3273 HC-RMON MIB               |

### Device management

|                                                  |                                  |
|--------------------------------------------------|----------------------------------|
| RFC 1155 Structure and Mgmt Information (SMIv1)  | RFC 3414 SNMP-User based-SM MIB  |
| RFC 1157 SNMPv1/v2c                              | RFC 3415 SNMP-View based-ACM MIB |
| RFC 1305 NTPv3                                   | RFC 3418 MIB for SNMPv3          |
| RFC 1945 Hypertext Transfer Protocol -- HTTP/1.0 | RFC 3621 Power Ethernet MIB      |
| RFC 2452 MIB for TCP6                            | RFC 3813 MPLS LSR MIB            |
| RFC 2454 MIB for UDP6                            | RFC 3814 MPLS FTN MIB            |
| RFC 2573 (SNMPv3 Applications)                   | RFC 3815 MPLS LDP MIB            |
| RFC 2578-2580 SMIv2                              | RFC 3826 AES for SNMP's USM MIB  |
|                                                  | RFC 4133 Entity MIB (Version 3)  |
|                                                  | LLDP-EXT-DOT1-MIB                |
|                                                  | LLDP-EXT-DOT3-MIB                |
|                                                  | LLDP-MIB                         |

### MPLS

|                                                                                    |
|------------------------------------------------------------------------------------|
| RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification |
| RFC 2209 Resource ReSerVation Protocol (RSVP)                                      |

## Technical Specifications

RFC 2579 (SMIPv2 Text Conventions)  
RFC 2580 (SMIPv2 Conformance)  
RFC 2819 (RMON groups Alarm, Event, History and Statistics only)  
RFC 2819 RMON  
RFC 3417 (SNMP Transport Mappings)  
SNMP v3 and RMON RFC support  
SSHv1/SSHv2 Secure Shell  
TACACS/TACACS+

### General protocols

IEEE 802.1ad Q-in-Q  
IEEE 802.1ag Service Layer OAM  
IEEE 802.1ah Provider Backbone Bridges  
IEEE 802.1D MAC Bridges  
IEEE 802.1p Priority  
IEEE 802.1Q VLANs  
IEEE 802.1s Multiple Spanning Trees  
IEEE 802.1v VLAN classification by Protocol and Port  
IEEE 802.1w Rapid Reconfiguration of Spanning Tree  
IEEE 802.1X PAE  
IEEE 802.3ab 1000BASE-T  
IEEE 802.3ad Link Aggregation (LAG)  
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 802.3i 10BASE-T  
IEEE 802.3u 100BASE-X  
IEEE 802.3x Flow Control  
IEEE 802.3z 1000BASE-X  
RFC 768 UDP  
RFC 783 TFTP Protocol (revision 2)  
RFC 791 IP  
RFC 792 ICMP  
RFC 793 TCP  
RFC 826 ARP  
RFC 854 TELNET  
RFC 868 Time Protocol  
RFC 903 RARP  
RFC 951 BOOTP  
RFC 959 File Transfer Protocol (FTP)  
RFC 1027 Proxy ARP  
RFC 1042 IP Datagrams  
RFC 1350 TFTP Protocol (revision 2)  
RFC 1519 CIDR  
RFC 1542 BOOTP Extensions  
RFC 1812 IPv4 Routing  
RFC 2131 DHCP  
RFC 2338 VRRP  
RFC 2784 Generic Routing Encapsulation (GRE)  
RFC 2865 Remote Authentication Dial In User

RFC 2702 Requirements for Traffic Engineering Over MPLS  
RFC 2858 Multiprotocol Extensions for BGP-4  
RFC 3031 Multiprotocol Label Switching Architecture  
RFC 3032 MPLS Label Stack Encoding  
RFC 3036 LDP Specification  
RFC 3107 Carrying Label Information in BGP-4  
RFC 3209 RSVP-TE: Extensions to RSVP for LSP Tunnels  
RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)  
RFC 3487 Graceful Restart Mechanism for LDP  
RFC 4090 Fast Reroute Extensions to RSVP-TE for LSP Tunnels  
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

### Network management

IEEE 802.1AB Link Layer Discovery Protocol (LLDP)  
IEEE 802.1D (STP)  
RFC 1155 Structure of Management Information  
RFC 1157 SNMPv1  
RFC 1215 SNMP Generic traps  
RFC 1757 RMON 4 groups: Stats, History, Alarms and Events  
RFC 1905 SNMPv2 Protocol Operations  
RFC 2211 Controlled-Load Network  
RFC 2272 SNMPv3 Management Protocol  
RFC 2273 SNMPv3 Applications  
RFC 2274 USM for SNMPv3  
RFC 2571 SNMP Management Frameworks  
RFC 2572 SNMPv3 Message Processing  
RFC 2573 SNMPv3 Applications  
RFC 2576 Coexistence between SNMP versions  
RFC 2578 SMIPv2  
RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events)  
RFC 3164 BSD syslog Protocol  
RFC 3415 SNMPv3 View-based Access Control Model VACM)

## Technical Specifications

Service (RADIUS)

### IP multicast

RFC 1112 IGMP  
RFC 2236 IGMPv2  
RFC 2283 Multiprotocol Extensions for BGP-4  
RFC 2362 PIM Sparse Mode  
RFC 2934 Protocol Independent Multicast MIB for IPv4  
RFC 3376 IGMPv3  
RFC 3618 Multicast Source Discovery Protocol (MSDP)  
RFC 4601 PIM Sparse Mode

### IPv6

RFC 1350 TFTP  
RFC 1981 IPv6 Path MTU Discovery  
RFC 2080 RIPng for IPv6  
RFC 2460 IPv6 Specification  
RFC 2461 IPv6 Neighbor Discovery  
RFC 2462 IPv6 Stateless Address Auto-configuration  
RFC 2463 ICMPv6  
RFC 2473 Generic Packet Tunneling in IPv6  
RFC 2475 IPv6 DiffServ Architecture  
RFC 2529 Transmission of IPv6 Packets over IPv4  
RFC 2710 Multicast Listener Discovery (MLD) for IPv6  
RFC 2740 OSPFv3 for IPv6  
RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers  
RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (Ping only)  
RFC 3315 DHCPv6 (client only)  
RFC 3484 Default Address Selection for IPv6  
RFC 3513 IPv6 Addressing Architecture  
RFC 3587 IPv6 Global Unicast Address Format  
RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6  
RFC 4251 SSHv6 Architecture  
RFC 4252 SSHv6 Authentication  
RFC 4253 SSHv6 Transport Layer  
RFC 4254 SSHv6 Connection  
RFC 4541 IGMP & MLD Snooping Switch  
RFC 4862 IPv6 Stateless Address Auto-configuration

### MIBS

IEEE8023-LAG-MIB  
RFC 1213 MIB II  
RFC 1229 Interface MIB Extensions  
RFC 1286 Bridge MIB  
RFC 1493 Bridge MIB  
RFC 1573 SNMP MIB II  
RFC 1643 Ethernet MIB

ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)  
SNMPv1/v2c/v3

### OSPF

RFC 1245 OSPF protocol analysis  
RFC 1246 Experience with OSPF  
RFC 1587 OSPF NSSA  
RFC 1765 OSPF Database Overflow  
RFC 1850 OSPFv2 Management Information Base (MIB), traps  
RFC 2328 OSPFv2  
RFC 2370 OSPF Opaque LSA Option  
RFC 3101 OSPF NSSA  
RFC 3623 Graceful OSPF Restart

### QoS/CoS

IEEE 802.1p (CoS)  
RFC 2212 Guaranteed Quality of Service  
RFC 2474 DS Field in the IPv4 and IPv6 Headers  
RFC 2475 DiffServ Architecture  
RFC 2597 DiffServ Assured Forwarding (AF)  
RFC 2598 DiffServ Expedited Forwarding (EF)  
RFC 2697 A Single Rate Three Color Marker  
RFC 2698 A Two Rate Three Color Marker  
Bi-directional Rate Shaping

### Security

IEEE 802.1AE MAC Security Standard (MACSec)  
IEEE 802.1X Port Based Network Access Control  
RFC 1321 The MD5 Message-Digest Algorithm  
RFC 2082 RIP-2 MD5 Authentication  
RFC 2104 Keyed-Hashing for Message Authentication  
RFC 2716 PPP EAP TLS Authentication Protocol  
RFC 2865 RADIUS Authentication  
RFC 2866 RADIUS Accounting  
RFC 2867 RADIUS Accounting Modifications for Tunnel Protocol Support  
RFC 2868 RADIUS Attributes for Tunnel Protocol Support  
RFC 2869 RADIUS Extensions  
RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication  
Access Control Lists (ACLs)  
Guest VLAN for 802.1X  
MAC Authentication  
SSHv2 Secure Shell  
Web Authentication

### IKEv1

RFC 2865 - Remote Authentication Dial In User Service (RADIUS)

## Technical Specifications

RFC 1657 BGP-4 MIB  
RFC 1724 RIPv2 MIB  
RFC 1757 Remote Network Monitoring MIB  
RFC 1850 OSPFv2 MIB  
RFC 2011 SNMPv2 MIB for IP  
RFC 2012 SNMPv2 MIB for TCP  
RFC 2013 SNMPv2 MIB for UDP  
RFC 2021 RMONv2 MIB  
RFC 2096 IP Forwarding Table MIB  
RFC 2233 Interfaces MIB  
RFC 2273 SNMP-NOTIFICATION-MIB  
RFC 2452 IPV6-TCP-MIB  
RFC 2454 IPV6-UDP-MIB  
RFC 2465 IPv6 MIB

## Accessories

### HPE FlexFabric 12500 Switch Series accessories

#### Modules

|                                                     |        |
|-----------------------------------------------------|--------|
| HPE FlexFabric 12500E Main Processing Unit          | JG802A |
| HP 12500 MPU w/Comware V7 OS                        | JG497A |
| HP 12500 Main Processing Unit                       | JC072B |
| HPE FlexFabric 12500 4-port 100GbE CFP FD Module    | JG786A |
| HPE FlexFabric 12500 4-port 100GbE CFP FG Module    | JG788A |
| HPE FlexFabric 12500 16-port 40GbE QSFP+ FD Module  | JG790A |
| HPE FlexFabric 12500 48-port 1/10GbE SFP+ FD Module | JG796A |
| HPE FlexFabric 12500 40-port 1/10GbE SFP+ FD Module | JG792A |
| HPE FlexFabric 12500 40-port 1/10GbE SFP+ FG Module | JG794A |
| HP 12500 16-port 10GbE SFP+ LEB Module              | JC782A |
| HP 12500 16-port 10GbE SFP+ LEC Module              | JC783A |
| HP 12500 32-port 10GbE SFP+ REB Module              | JC064B |
| HP 12500 32-port 10GbE SFP+ REC Module              | JC476B |
| HP 12500 8-port 10GbE SFP+ LEB Module               | JC780A |
| HP 12500 8-port 10GbE SFP+ LEC Module               | JC781A |
| HP 12500 8-port 10GbE SFP+ LEF Module               | JC659A |
| HP 12500 48-port Gig-T LEB Module                   | JC074B |
| HPE 12500 48-port Gig-T LEC Module                  | JC065B |
| HP 12500 48-port GbE SFP LEB Module                 | JC075B |
| HPE 12500 48-port GbE SFP LEC Module                | JC069B |
| HPE 12500 48-port GbE SFP LEF Module                | JC660A |
| HP 12500 Spare Power Monitor Module                 | JC502A |

#### Transceivers

|                                                            |        |
|------------------------------------------------------------|--------|
| 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 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 X170 1G SFP LC LH70 1550 Transceiver                   | JD109A |
| HPE X170 1G SFP LC LH70 1570 Transceiver                   | JD110A |
| HPE X170 1G SFP LC LH70 1590 Transceiver                   | JD111A |
| HPE X170 1G SFP LC LH70 1610 Transceiver                   | JD112A |
| HPE X170 1G SFP LC LH70 1510 Transceiver                   | JD115A |
| HPE X120 1G SFP LC SX Transceiver                          | JD118B |
| HPE X120 1G SFP LC LX Transceiver                          | JD119B |
| HPE X130 10G XFP LC ZR Single Mode 80km 1550nm Transceiver | JD107A |
| HPE X130 10G XFP LC LR Single Mode 10km 1310nm Transceiver | JD108B |
| HPE X130 10G XFP LC SR Transceiver                         | JD117B |
| HPE X135 10G XFP LC ER Transceiver                         | JD121A |
| HPE X180 10G XFP LC LH 80km 1538.98nm DWDM Transceiver     | JG226A |
| HPE X180 10G XFP LC LH 80km 1539.77nm DWDM Transceiver     | JG227A |
| HPE X180 10G XFP LC LH 80km 1542.94nm DWDM Transceiver     | JG230A |

## Accessories

|                                                                     |        |
|---------------------------------------------------------------------|--------|
| 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 ER 40km Transceiver                            | JG234A |
| HPE X130 10G SFP+ LC LH 80km Transceiver                            | JG915A |
| 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+ MPO SR4 Transceiver                              | JG325B |
| HPE X140 40G QSFP+ MPO MM 850nm CSR4 300m Transceiver               | JG709A |
| HPE X140 40G QSFP+ LC LR4 SM 10km 1310nm Transceiver                | JG661A |
| HPE X140 40G QSFP+ LC BiDi 100m MM Transceiver                      | JL251A |
| HP X150 100G CFP LC LR4 10km SM Transceiver                         | JG829A |

## Cables

|                                                         |        |
|---------------------------------------------------------|--------|
| HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable  | QK732A |
| HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable  | QK733A |
| HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable  | QK734A |
| HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable | QK735A |
| HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable | QK736A |
| HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable | QK737A |

## Mounting Kit

|                                                 |        |
|-------------------------------------------------|--------|
| HPE X421 Chassis Universal 4-post Rackmount Kit | JC665A |
|-------------------------------------------------|--------|

## Memory

|                                       |        |
|---------------------------------------|--------|
| HPE FlexFabric 4GB Compact Flash Card | JG806A |
| HPE FlexFabric 4GB DDR3 SDRAM Memory  | JG807A |
| HPE X600 1G Compact Flash Card        | JC684A |

## HPE 12504 AC Switch Chassis (JC654A)

|                                 |        |
|---------------------------------|--------|
| HPE 1250x G2 Fabric Module      | JC658A |
| HPE 12500 AC Power Entry Module | JF426A |
| HPE 12500 2000W AC Power Supply | JF429A |
| HPE 12504 Fan Assembly          | JC664A |

## HPE 12504 DC Switch Chassis (JC655A)

|                                                                      |        |
|----------------------------------------------------------------------|--------|
| HPE 1250x G2 Fabric Module                                           | JC658A |
| HPE X210 10m JG Connector to Bare 6AWG 37800 Watt 72V DC Power Cable | JG280A |
| HPE 12500 1800W DC Power Supply                                      | JC651A |
| HPE 12504 Fan Assembly                                               | JC664A |

## HP 12508 AC Switch Chassis (JF431C)

|                                                            |        |
|------------------------------------------------------------|--------|
| HPE 1250x G2 Fabric Module                                 | JC658A |
| HP 12508 Top and Bottom Cable Guides for AC Powered Switch | JC785A |
| HP 12500 Side Cable Management Guide                       | JC084A |
| HPE 12500 2000W AC Power Supply                            | JF429A |
| HPE 12500 AC Power Entry Module                            | JF426A |
| HP 12508 Fan Assembly                                      | JC081A |
| HP 12508 Optional Air Filter                               | JC082A |

## HP 12508 DC Switch Chassis (JC652A)

|                                                            |        |
|------------------------------------------------------------|--------|
| HP 12508 Fabric Module                                     | JC067B |
| HPE 1250x G2 Fabric Module                                 | JC658A |
| HP 12508 Top and Bottom Cable Guides for DC Powered Switch | JC787A |
| HP 12500 Side Cable Management Guide                       | JC084A |

## Accessories

|                                                                           |        |
|---------------------------------------------------------------------------|--------|
| HPE X210 10m JG Connector to Bare 6AWG 37800 Watt 72V DC Power Cable      | JG280A |
| HPE 12500 1800W DC Power Supply                                           | JC651A |
| HP 12508 Fan Assembly                                                     | JC081A |
| HP 12508 Optional Air Filter                                              | JC082A |
| <b>HP 12518 AC Switch Chassis (JF430C)</b>                                |        |
| HP 12518 G2 Fabric Module                                                 | JC657A |
| HP 12518 Fabric Module                                                    | JC066A |
| HP 12518 Top and Bottom Cable Guides for AC Powered Switch                | JC786A |
| HP 12500 Side Cable Management Guide                                      | JC084A |
| HPE 12500 2000W AC Power Supply                                           | JF429A |
| HPE 12500 AC Power Entry Module                                           | JF426A |
| HP 12518 Fan Assembly                                                     | JC080A |
| HP 12518 Optional Air Filter                                              | JC083A |
| <b>HP 12518 DC Switch Chassis (JC653A)</b>                                |        |
| HP 12518 G2 Fabric Module                                                 | JC657A |
| HP 12518 Fabric Module                                                    | JC066A |
| HP 12518 Top and Bottom Cable Guides for DC Powered Switch                | JC788A |
| HP 12500 Side Cable Management Guide                                      | JC084A |
| HPE X210 10m JG Connector to Bare 6AWG 37800 Watt 72V DC Power Cable      | JG280A |
| HPE 12500 1800W DC Power Supply                                           | JC651A |
| HP 12518 Fan Assembly                                                     | JC080A |
| HP 12518 Optional Air Filter                                              | JC083A |
| <b>HPE FlexFabric 12508E AC Switch Chassis (JG782A)</b>                   |        |
| HPE FlexFabric 12508E Fabric Module                                       | JG798A |
| HPE FlexFabric 12508E Optional Extended Cable Guide for AC Powered Switch | JG830A |
| HPE FlexFabric 12508E Optional Extended Cable Guide for DC Powered Switch | JG832A |
| HPE 12500 2000W AC Power Supply                                           | JF429A |
| HPE FlexFabric 12500E Spare Power Monitor Module                          | JG804A |
| HPE FlexFabric 12500E Fan Tray Assembly                                   | JG805A |
| HPE FlexFabric 12508E Optional Air Filter                                 | JG808A |
| <b>HPE FlexFabric 12508E DC Switch Chassis (JG783A)</b>                   |        |
| HPE FlexFabric 12508E Fabric Module                                       | JG798A |
| HP 12508 Top and Bottom Cable Guides for DC Powered Switch                | JC787A |
| HP 12500 Side Cable Management Guide                                      | JC084A |
| HPE X210 10m JG Connector to Bare 6AWG 37800 Watt 72V DC Power Cable      | JG280A |
| HPE FlexFabric 12508E Optional Extended Cable Guide for DC Powered Switch | JG832A |
| HPE 12500 1800W DC Power Supply                                           | JC651A |
| HPE FlexFabric 12500E Spare Power Monitor Module                          | JG804A |
| HPE FlexFabric 12500E Fan Tray Assembly                                   | JG805A |
| HPE FlexFabric 12508E Optional Air Filter                                 | JG808A |
| <b>HPE FlexFabric 12518E AC Switch Chassis (JG784A)</b>                   |        |
| HPE FlexFabric 12518E Fabric Module                                       | JG800A |
| HP 12518 Top and Bottom Cable Guides for AC Powered Switch                | JC786A |
| HP 12500 Side Cable Management Guide                                      | JC084A |
| HPE FlexFabric 12518E Optional Extended Cable Guide for AC Powered Switch | JG831A |
| HPE 12500 2000W AC Power Supply                                           | JF429A |
| HPE 12500 AC Power Entry Module                                           | JF426A |
| HPE FlexFabric 12500E Spare Power Monitor Module                          | JG804A |
| HPE FlexFabric 12500E Fan Tray Assembly                                   | JG805A |
| HPE FlexFabric 12518E Optional Air Filter                                 | JG809A |

Accessories

HPE FlexFabric 12518E DC Switch Chassis (JG785A)

|                                                                           |        |
|---------------------------------------------------------------------------|--------|
| HPE FlexFabric 12518E Fabric Module                                       | JG800A |
| HP 12518 Top and Bottom Cable Guides for DC Powered Switch                | JC788A |
| HP 12500 Side Cable Management Guide                                      | JC084A |
| HPE X210 10m JG Connector to Bare 6AWG 37800 Watt 72V DC Power Cable      | JG280A |
| HPE FlexFabric 12518E Optional Extended Cable Guide for DC Powered Switch | JG833A |
| HPE 12500 1800W DC Power Supply                                           | JC651A |
| HPE FlexFabric 12500E Spare Power Monitor Module                          | JG804A |
| HPE FlexFabric 12500E Fan Tray Assembly                                   | JG805A |
| HPE FlexFabric 12518E Optional Air Filter                                 | JG809A |

## Accessory Product Details

**NOTE:** Details are not available for all accessories. The following specifications were available at the time of publication.

### Modules

|                                                                     |                                 |                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>HPE FlexFabric 12500 4-port 100GbE CFP FG Module</b><br>(JG788A) | <b>I/O ports and slots</b>      | 4 CFP 100GbE ports                                                                                                                                                                                                                                                                                                                               |
|                                                                     | <b>Physical characteristics</b> | <b>Dimensions</b> 15.75(w) x 18.39(d) x 1.57(h) in (40.0 x 46.7 x 4.0 cm)                                                                                                                                                                                                                                                                        |
|                                                                     | <b>Weight</b>                   | 13.12 lb (5.95 kg)                                                                                                                                                                                                                                                                                                                               |
|                                                                     | <b>Services</b>                 | Refer to the Hewlett Packard Enterprise website at: <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |
| <b>HPE FlexFabric 12500 4-port 100GbE CFP FD Module</b><br>(JG786A) | <b>I/O ports and slots</b>      | 4 CFP 100GbE ports                                                                                                                                                                                                                                                                                                                               |
|                                                                     | <b>Physical characteristics</b> | <b>Dimensions</b> 15.75(w) x 18.39(d) x 1.57(h) in (40.0 x 46.7 x 4.0 cm)                                                                                                                                                                                                                                                                        |
|                                                                     | <b>Weight</b>                   | 12.68 lb (5.75 kg)                                                                                                                                                                                                                                                                                                                               |
|                                                                     | <b>Services</b>                 | Refer to the Hewlett Packard Enterprise website at: <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |
| <b>HP 12500 48-port Gig-T LEB Module</b><br>(JC074B)                | <b>I/O ports and slots</b>      | 48 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T);<br>Duplex:<br>10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only                                                                                                                                             |
|                                                                     | <b>Physical characteristics</b> | <b>Dimensions</b> 18.39(d) x 15.75(w) x 1.57(h) in. (46.7 x 40 x 4 cm)                                                                                                                                                                                                                                                                           |
|                                                                     | <b>Weight</b>                   | 9.37 lb. (4.25 kg)                                                                                                                                                                                                                                                                                                                               |
|                                                                     | <b>Services</b>                 | Refer to the Hewlett Packard Enterprise website at: <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |
| <b>HPE 12500 48-port Gig-T LEC Module</b><br>(JC065B)               | <b>I/O ports and slots</b>      | 48 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T);<br>Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only                                                                                                                                                |
|                                                                     | <b>Physical characteristics</b> | <b>Dimensions</b> 18.39(d) x 15.75(w) x 1.57(h) in. (46.7 x 40 x 4 cm)                                                                                                                                                                                                                                                                           |
|                                                                     | <b>Weight</b>                   | 9.79 lb. (4.44 kg)                                                                                                                                                                                                                                                                                                                               |
|                                                                     | <b>Services</b>                 | Refer to the Hewlett Packard Enterprise website at: <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |

## Accessory Product Details

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| <b>HP 12500 48-port GbE SFP LEB Module</b><br>(JC075B) | <b>Ports</b>                    | 48 SFP 100/1000 Mbps ports                                                                                                                                                                                                                                                                                                                          |
|                                                        | <b>Physical characteristics</b> | <b>Dimensions</b> 18.39(d) x 15.75(w) x 1.57(h) in. (46.7 x 40 x 4 cm)                                                                                                                                                                                                                                                                              |
|                                                        |                                 | <b>Weight</b> 9.96 lb. (4.52 kg)                                                                                                                                                                                                                                                                                                                    |
|                                                        | <b>Services</b>                 | Refer to the Hewlett Packard Enterprise website at:<br><a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |

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| <b>HPE 12500 48-port GbE SFP LEC Module</b><br>(JC069B) | <b>Ports</b>                    | 48 SFP 100/1000 Mbps ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T)<br>Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only                                                                                                                                                                |
|                                                         | <b>Physical characteristics</b> | <b>Dimensions</b> 18.39(d) x 15.75(w) x 1.57(h) in. (46.7 x 40 x 4 cm)                                                                                                                                                                                                                                                                              |
|                                                         |                                 | <b>Weight</b> 10.03 lb. (4.55 kg)                                                                                                                                                                                                                                                                                                                   |
|                                                         | <b>Services</b>                 | Refer to the Hewlett Packard Enterprise website at:<br><a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |

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| <b>HP 12500 32-port 10GbE SFP+ REB Module</b> (JC064B) | <b>Ports</b>                    | 32 SFP+ 10-GbE ports<br>Duplex: full only                                                                                                                                                                                                                                                                                                           |
|                                                        | <b>Physical characteristics</b> | <b>Dimensions</b> 18.39(d) x 15.75(w) x 1.57(h) in. (46.7 x 40 x 4 cm)                                                                                                                                                                                                                                                                              |
|                                                        |                                 | <b>Weight</b> 13.45 lb. (6.10 kg)                                                                                                                                                                                                                                                                                                                   |
|                                                        | <b>Services</b>                 | Refer to the Hewlett Packard Enterprise website at:<br><a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |

## Transceivers

|                                                                                                                                                                                                              |                                   |                                                                                                                                                                                         |
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| <b>HPE X125 1G SFP LC LH40 1310nm Transceiver</b> (JD061A)<br><br>A small form-factor pluggable SFP Gigabit LH40 transceiver that provides a full duplex Gigabit solution up to 40km on a single-mode fiber. | <b>Ports</b>                      | 1 LC 1000Base-LH port (no IEEE standard exists for 1550 nm optics)                                                                                                                      |
|                                                                                                                                                                                                              | <b>Connectivity</b>               | Connector type LC                                                                                                                                                                       |
|                                                                                                                                                                                                              |                                   | Wavelength 1310 nm                                                                                                                                                                      |
|                                                                                                                                                                                                              | <b>Physical characteristics</b>   | Dimensions 2.17(d) x 0.6(w) x 0.46(h) in. (5.51 x 1.52 x 1.17 cm)<br>Full configuration weight 0.04 lb. (0.02 kg)                                                                       |
|                                                                                                                                                                                                              | <b>Electrical characteristics</b> | Power consumption typical 0.8 W<br>Power consumption maximum 1.0 W                                                                                                                      |
|                                                                                                                                                                                                              | <b>Cabling</b>                    | Cable type:<br>Single-mode fiber optic, complying with ITU-T G.652;<br><br>Maximum distance:<br><ul style="list-style-type: none"><li>40km distance</li></ul><br>Fiber type Single Mode |

## Accessory Product Details

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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                 |                                   | <b>Services</b>                                                     | Refer to the Hewlett Packard Enterprise website at: <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office                           |
| <b>HPE X120 1G SFP LC LH40 1550nm Transceiver</b> (JD062A)<br><br>A small form-factor pluggable (SFP) Gigabit LH40 transceiver that provides a full-duplex Gigabit solution up to 40 km on a single mode fiber. | <b>Ports</b>                      | 1 LC 1000BASE-LH port (no IEEE standard exists for 1550 nm optics)  |                                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                 | <b>Connectivity</b>               | Connector type                                                      | LC                                                                                                                                                                                                                                                                                                                                                                         |
|                                                                                                                                                                                                                 |                                   | Wavelength                                                          | 1550 nm                                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                                 | <b>Physical characteristics</b>   | Dimensions                                                          | 2.17(d) x 0.6(w) x 0.46(h) in. (5.51 x 1.52 x 1.17 cm)                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                 |                                   | Full configuration weight                                           | 0.04 lb. (0.02 kg)                                                                                                                                                                                                                                                                                                                                                         |
|                                                                                                                                                                                                                 | <b>Electrical characteristics</b> | Power consumption typical                                           | 0.8 W                                                                                                                                                                                                                                                                                                                                                                      |
|                                                                                                                                                                                                                 |                                   | Power consumption maximum                                           | 1.0 W                                                                                                                                                                                                                                                                                                                                                                      |
|                                                                                                                                                                                                                 | <b>Cabling</b>                    | Cable type:<br>Single-mode fiber optic, complying with ITU-T G.652; |                                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                 |                                   | Maximum distance:                                                   |                                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                 |                                   | <ul style="list-style-type: none"> <li>40km distance</li> </ul>     |                                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                 |                                   | <b>Services</b>                                                     | Fiber type Single Mode<br>Refer to the Hewlett Packard Enterprise website at: <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |
| <b>HPE X125 1G SFP LC LH70 Transceiver</b> (JD063B)<br><br>A small form-factor pluggable (SFP) Gigabit LH70 transceiver that provides a full-duplex Gigabit solution up to 70km on a single-mode fiber.         | <b>Ports</b>                      | 1 LC 1000BASE-LH port (no IEEE standard exists for 1550 nm optics)  |                                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                 | <b>Connectivity</b>               | Connector type                                                      | LC                                                                                                                                                                                                                                                                                                                                                                         |
|                                                                                                                                                                                                                 |                                   | Wavelength                                                          | 1550 nm                                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                                 | <b>Physical characteristics</b>   | Dimensions                                                          | 2.17(d) x 0.6(w) x 0.46(h) in. (5.51 x 1.52 x 1.17 cm)                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                 |                                   | Full configuration weight                                           | 0.04 lb. (0.02 kg)                                                                                                                                                                                                                                                                                                                                                         |
|                                                                                                                                                                                                                 | <b>Electrical characteristics</b> | Power consumption typical                                           | 0.8 W                                                                                                                                                                                                                                                                                                                                                                      |
|                                                                                                                                                                                                                 |                                   | Power consumption maximum                                           | 1.0 W                                                                                                                                                                                                                                                                                                                                                                      |
|                                                                                                                                                                                                                 | <b>Cabling</b>                    | Cable type:<br>Single-mode fiber optic, complying with ITU-T G.652; |                                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                 |                                   | Maximum distance:                                                   |                                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                 |                                   | <ul style="list-style-type: none"> <li>70km</li> </ul>              |                                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                 |                                   | <b>Services</b>                                                     | Fiber type Single Mode<br>Refer to the Hewlett Packard Enterprise website at: <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |

## Accessory Product Details

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| <b>HPE X120 1G SFP RJ45 T Transceiver</b><br>(JD089B)<br><br>A small form factor pluggable (SFP) Gigabit 1000Base-T transceiver that provides a full duplex Gigabit solution up to 100m on a Cat-5+ cable. | <b>Ports</b>                      | 1 RJ-45 1000BASE-T port (IEEE 802.3ab Type 1000BASE-T)                                                                                                                                                                                                                                                                                              |                                                        |
|                                                                                                                                                                                                            | <b>Connectivity</b>               | <b>Connector type</b>                                                                                                                                                                                                                                                                                                                               | RJ-45                                                  |
|                                                                                                                                                                                                            | <b>Physical characteristics</b>   | <b>Dimensions</b>                                                                                                                                                                                                                                                                                                                                   | 2.71(d) x 0.54(w) x 0.55(h) in. (6.88 x 1.37 x 1.4 cm) |
|                                                                                                                                                                                                            |                                   | <b>Full configuration weight</b>                                                                                                                                                                                                                                                                                                                    | 0.07 lb. (0.03 kg)                                     |
|                                                                                                                                                                                                            | <b>Electrical characteristics</b> | <b>Power consumption typical</b>                                                                                                                                                                                                                                                                                                                    | 0.8 W                                                  |
|                                                                                                                                                                                                            |                                   | <b>Power consumption maximum</b>                                                                                                                                                                                                                                                                                                                    | 1.0 W                                                  |
|                                                                                                                                                                                                            | <b>Cabling</b>                    | Cable type:<br>1000BASE-T: Category 5 (5E or better recommended), 100 Ω differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T;                                                                                                                                          |                                                        |
|                                                                                                                                                                                                            |                                   | Maximum distance:<br>• 100m                                                                                                                                                                                                                                                                                                                         |                                                        |
|                                                                                                                                                                                                            |                                   |                                                                                                                                                                                                                                                                                                                                                     |                                                        |
|                                                                                                                                                                                                            | <b>Services</b>                   | Refer to the Hewlett Packard Enterprise website at:<br><a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |                                                        |

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| <b>HPE X120 1G SFP LC BX 10-U Transceiver</b><br>(JD098B)                                                                                         |                                                                                                                                                                                                                                                                                                                                                  | 1 LC 1000BASE-BX10 port (IEEE 802.3ah Type 1000BASE-BX10-U); Duplex: full only |                                                        |
| A small form-factor pluggable (SFP) Gigabit LX-BX10-U transceiver that provides a full duplex Gigabit solution up to 10km on a single mode cable. | <b>Connectivity</b>                                                                                                                                                                                                                                                                                                                              | <b>Connector type</b>                                                          | LC                                                     |
|                                                                                                                                                   | <b>Physical characteristics</b>                                                                                                                                                                                                                                                                                                                  | <b>Dimensions</b>                                                              | 2.17(d) x 0.6(w) x 0.46(h) in. (5.51 x 1.52 x 1.17 cm) |
|                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                  | <b>Full configuration weight</b>                                               | 0.04 lb. (0.02 kg)                                     |
|                                                                                                                                                   | <b>Electrical characteristics</b>                                                                                                                                                                                                                                                                                                                | <b>Power consumption typical</b>                                               | 0.8 W                                                  |
|                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                  | <b>Power consumption maximum</b>                                               | 1.0 W                                                  |
|                                                                                                                                                   | <b>Cabling</b>                                                                                                                                                                                                                                                                                                                                   | Maximum distance: <ul style="list-style-type: none"><li>• 10km</li></ul>       |                                                        |
|                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                  | Fiber type                                                                     | Single Mode                                            |
| <b>Notes</b>                                                                                                                                      | TX 1310nm RX 1490nm                                                                                                                                                                                                                                                                                                                              |                                                                                |                                                        |
| <b>Services</b>                                                                                                                                   | Refer to the Hewlett Packard Enterprise website at: <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |                                                                                |                                                        |

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| <b>HPE X120 1G SFP LC BX 10-D Transceiver</b><br>(JD099B)<br><br>A small form-factor pluggable (SFP) Gigabit LX-BX10-D transceiver that provides a full duplex Gigabit solution up to 10km on a single mode | <b>Ports</b>                      | 1 LC 1000BASE-BX10 port (IEEE 802.3ah Type 1000BASE-BX10-D); Duplex: full only |                                                        |
|                                                                                                                                                                                                             | <b>Connectivity</b>               | <b>Connector type</b>                                                          | LC                                                     |
|                                                                                                                                                                                                             | <b>Physical characteristics</b>   | <b>Dimensions</b>                                                              | 2.17(d) x 0.6(w) x 0.46(h) in. (5.51 x 1.52 x 1.17 cm) |
|                                                                                                                                                                                                             |                                   | <b>Full configuration weight</b>                                               | 0.04 lb. (0.02 kg)                                     |
|                                                                                                                                                                                                             | <b>Electrical characteristics</b> | <b>Power consumption typical</b>                                               | 0.8 W                                                  |
|                                                                                                                                                                                                             |                                   | <b>Power consumption maximum</b>                                               | 1.0 W                                                  |

## Accessory Product Details

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|  | <b>Cabling</b>  | <b>maximum</b><br>Maximum distance:<br>• Up to 10km                                                                                                                                                                                                                                                                                                 |
|  |                 | Fiber type<br>Single Mode                                                                                                                                                                                                                                                                                                                           |
|  | <b>Notes</b>    | TX 1490nm RX 1310nm                                                                                                                                                                                                                                                                                                                                 |
|  | <b>Services</b> | Refer to the Hewlett Packard Enterprise website at:<br><a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |

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| <b>HPE X120 1G SFP LC LH100 Transceiver</b><br>(JD103A)<br><br>A small form factor pluggable (SFP) Gigabit LH100 transceiver that provides a full-duplex Gigabit solution up to 100km on a single mode fiber. | <b>Ports</b>                      | 1 LC 1000BASE-LH port (no IEEE standard exists for 1550 nm optics)                                                                                                                                                                                                                                                                                  |             |
|                                                                                                                                                                                                               | <b>Connectivity</b>               | <b>Connector type</b>                                                                                                                                                                                                                                                                                                                               | LC          |
|                                                                                                                                                                                                               |                                   | <b>Wavelength</b>                                                                                                                                                                                                                                                                                                                                   | 1550 nm     |
|                                                                                                                                                                                                               | <b>Electrical characteristics</b> | <b>Power consumption typical</b>                                                                                                                                                                                                                                                                                                                    | 0.8 W       |
|                                                                                                                                                                                                               |                                   | <b>Power consumption maximum</b>                                                                                                                                                                                                                                                                                                                    | 1.0 W       |
|                                                                                                                                                                                                               | <b>Cabling</b>                    | Cable type:<br>Single-mode fiber optic, complying with ITU-T G.652;                                                                                                                                                                                                                                                                                 |             |
|                                                                                                                                                                                                               |                                   | Maximum distance:<br>• Up to 100km                                                                                                                                                                                                                                                                                                                  |             |
|                                                                                                                                                                                                               |                                   | Fiber type                                                                                                                                                                                                                                                                                                                                          | Single Mode |
|                                                                                                                                                                                                               | <b>Services</b>                   | Refer to the Hewlett Packard Enterprise website at:<br><a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |             |

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| <b>HPE X120 1G SFP LC SX Transceiver</b><br>(JD118B)<br><br>A small form-factor pluggable (SFP) Gigabit SX transceiver that provides a full-duplex Gigabit solution up to 550m on a Multimode fiber. | <b>Ports</b>                      | 1 LC 1000BASE-SX port                                                                                                                                                               |                                                        |
|                                                                                                                                                                                                      | <b>Connectivity</b>               | <b>Connector type</b>                                                                                                                                                               | LC                                                     |
|                                                                                                                                                                                                      |                                   | <b>Wavelength</b>                                                                                                                                                                   | 850 nm                                                 |
|                                                                                                                                                                                                      | <b>Physical characteristics</b>   | <b>Dimensions</b>                                                                                                                                                                   | 2.17(d) x 0.6(w) x 0.46(h) in. (5.51 x 1.52 x 1.17 cm) |
|                                                                                                                                                                                                      |                                   | <b>Full configuration weight</b>                                                                                                                                                    | 0.04 lb. (0.02 kg)                                     |
|                                                                                                                                                                                                      | <b>Electrical characteristics</b> | <b>Power consumption typical</b>                                                                                                                                                    | 0.8 W                                                  |
|                                                                                                                                                                                                      |                                   | <b>Power consumption maximum</b>                                                                                                                                                    | 1.0 W                                                  |
|                                                                                                                                                                                                      | <b>Cabling</b>                    | Maximum distance:<br>• FDDI Grade distance = 220m<br>• OM1 = 275m<br>• OM2 = 500m<br>• OM3 = Not Specified by standard                                                              |                                                        |
|                                                                                                                                                                                                      |                                   | Cable length                                                                                                                                                                        | up to 550m                                             |
|                                                                                                                                                                                                      |                                   | Fiber type                                                                                                                                                                          | Multi Mode                                             |
|                                                                                                                                                                                                      | <b>Services</b>                   | Refer to the Hewlett Packard Enterprise website at:<br><a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level |                                                        |

## Accessory Product Details

descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office

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| <b>HPE X120 1G SFP LC LX Transceiver (JD119B)</b><br><br>A small form-factor pluggable (SFP) Gigabit LX transceiver that provides a full duplex Gigabit solution up to 550m on MMF or 10Km on SMF | <b>Ports</b>                      | 1 SFP 1000BASE-LX port (IEEE 802.3z Type 1000BASE-LX)                                                                                                                                                                                                                                                                                               |
|                                                                                                                                                                                                   | <b>Connectivity</b>               | <b>Connector type</b> LC                                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                   | <b>Physical characteristics</b>   | <b>Wavelength</b> 1300 nm                                                                                                                                                                                                                                                                                                                           |
|                                                                                                                                                                                                   |                                   | <b>Dimensions</b> 2.17(d) x 0.6(w) x 0.46(h) in. (5.51 x 1.52 x 1.17 cm)                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                   | <b>Electrical characteristics</b> | <b>Full configuration weight</b> 0.04 lb. (0.02 kg)                                                                                                                                                                                                                                                                                                 |
|                                                                                                                                                                                                   |                                   | <b>Power consumption typical</b> 0.8 W                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                                                                                   |                                   | <b>Power consumption maximum</b> 1.0 W                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                                                                                   | <b>Cabling</b>                    | Cable type:<br>Either single mode or multimode;                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                   | <b>Services</b>                   | Maximum distance:<br><ul style="list-style-type: none"> <li>• 550m for Multimode</li> <li>• 10km for Singlemode</li> </ul> Fiber type Both                                                                                                                                                                                                          |
|                                                                                                                                                                                                   |                                   | Refer to the Hewlett Packard Enterprise website at:<br><a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |

## Cables

|                                                                        |                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable (QK732A)</b> | <b>Notes</b>    | Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                                        | <b>Services</b> | <ul style="list-style-type: none"> <li>• Core Diameter: 50um ±3um, Cladding diameter: 125um ±2um; Coating diameter: 245 ± 10um</li> <li>• Bandwidth: 3000 MHz-km @ 850nm (Laser)</li> <li>• Jacket Color: Blue</li> <li>• Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic</li> <li>• Boot Color: White</li> <li>• Outer Jacket Print: HPE PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable.</li> <li>• Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths &gt;30m</li> <li>• Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45</li> </ul> Refer to the Hewlett Packard Enterprise website at:<br><a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |

## Accessory Product Details

### HPE Premier Flex LC/LC Notes Multi-mode OM4 2 fiber 2m Cable (QK733A)

Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end.

- Core diameter: 50um  $\pm$  3um, Cladding diameter: 125um  $\pm$  2um; Coating diameter: 245  $\pm$  10um
- Bandwidth: 3000 MHz-km @ 850nm (Laser)
- Jacket Color: Blue
- Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic
- Boot Color: White
- Outer Jacket Print: HPE PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable.
- Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths > 30m
- Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45

#### 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 Premier Flex LC/LC Notes Multi-mode OM4 2 fiber 5m Cable (QK734A)

Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end.

- Core diameter: 50um  $\pm$  3um, Cladding diameter: 125um  $\pm$  2um; Coating diameter: 245  $\pm$  10um
- Bandwidth: 3000 MHz-km @ 850nm (Laser)
- Jacket Color: Blue
- Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic
- Boot Color: White
- Outer Jacket Print: HPE PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable.
- Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths > 30m
- Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45

#### 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 Premier Flex LC/LC Notes Multi-mode OM4 2 fiber 15m Cable (QK735A)

Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end.

- Core diameter: 50um  $\pm$  3um, Cladding diameter: 125um  $\pm$  2um; Coating diameter: 245  $\pm$  10um
- Bandwidth: 3000 MHz-km @ 850nm (Laser)

## Accessory Product Details

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 | <ul style="list-style-type: none"> <li>• Jacket Color: Blue</li> <li>• Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic</li> <li>• Boot Color: White</li> <li>• Outer Jacket Print: HPE PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable.</li> <li>• Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths &gt; 30m</li> <li>• Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45</li> </ul> |
| <b>Services</b> | <p>Refer to the Hewlett Packard Enterprise website at: <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office</p>                                                                                                                                                                                                                                                                                       |

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### HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable (QK736A) Notes

Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end.

- Core diameter: 50um ±3um, Cladding diameter: 125um ±2um; Coating diameter: 245 ± 10um
- Bandwidth: 3000 MHz-km @ 850nm (Laser)
- Jacket Color: Blue
- Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic
- Boot Color: White
- Outer Jacket Print: HPE PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable.
- Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths > 30m
- Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45

#### 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

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### HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable (QK737A) Notes

Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end.

- Core diameter: 50um ±3um, Cladding diameter: 125um ±2um; Coating diameter: 245 ± 10um
- Bandwidth: 3000 MHz-km @ 850nm (Laser)
- Jacket Color: Blue
- Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic
- Boot Color: White
- Outer Jacket Print: HPE PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable.

Accessory Product Details

|                                             |                          |                                                                                                                                                                                                                                                                                                                                                     |                                                           |
|---------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
|                                             |                          | <ul style="list-style-type: none"><li>• Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths &gt;30m</li><li>• Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45</li></ul>                                                                            |                                                           |
|                                             |                          | Refer to the Hewlett Packard Enterprise website at:<br><a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |                                                           |
| HP 12500 MPU<br>w/Comware V7 OS<br>(JG497A) | Physical characteristics | Dimensions                                                                                                                                                                                                                                                                                                                                          | 23.2(w) x 30.7(d) x 11.2(h) in (58.93 x 77.98 x 28.45 cm) |
|                                             |                          | Weight                                                                                                                                                                                                                                                                                                                                              | 22.16 lb (10.05 kg)                                       |
|                                             | Services                 | Refer to the Hewlett Packard Enterprise website at:<br><a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office |                                                           |

## Summary of Changes

| Date         | Version History       | Action  | Description of Change                                                                                                                                                                       |
|--------------|-----------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17-Jul-2017  | From Version 39 to 40 | Changed | Configuration section updated                                                                                                                                                               |
| 18-Apr-2017  | From Version 38 to 39 | Added   | Transceivers added on the Configuration section: JL437A, JL438A, JL439A                                                                                                                     |
| 17-Feb-2017  | From Version 37 to 38 | Changed | Configuration section updated: Removing Defaults in Remarks sections                                                                                                                        |
| 01-Aug-2016  | From Version 36 to 37 | Changed | Configuration section was completely revised including the addition of the #AC3 Option                                                                                                      |
| 06-June-2016 | From Version 35 to 36 | Changed | Document name changed to HPE FlexFabric 12500 Switch Series.<br>Product description updated.                                                                                                |
| 22-Apr-2016  | From Version 34 to 35 | Changed | SKU descriptions updated on the entire document                                                                                                                                             |
| 18-Mar-2016  | From Version 33 to 34 | Changed | Changes made on Configuration section and Product images                                                                                                                                    |
| 16-Feb-2016  | From Version 32 to 33 | Added   | SKU added: JL251A                                                                                                                                                                           |
|              |                       | Changed | Accessories and Technical Specifications updated                                                                                                                                            |
| 8-Jan-2016   | From Version 31 to 32 | Changed | Warranty and Support updated                                                                                                                                                                |
| 2-Oct-2015   | From Version 30 to 31 | Changed | Models list added on Overview                                                                                                                                                               |
| 21-Aug-2015  | From Version 29 to 30 | Changed | Configuration Menu updated                                                                                                                                                                  |
| 30-Mar-2015  | From Version 28 to 29 | Added   | Transceiver added: JG915A                                                                                                                                                                   |
|              |                       | Changed | Changes made on the entire QuickSpecs                                                                                                                                                       |
| 20-Jan-2015  | From Version 27 to 28 | Changed | Minor changes made on Technical Specifications                                                                                                                                              |
| 15-Jan-2015  | From Version 26 to 27 | Changed | Minor changes made on Technical Specifications                                                                                                                                              |
| 13-Aug-2014  | From Version 25 to 26 | Changed | General protocols and Security updated on Technical Specifications                                                                                                                          |
| 3-Jul-2014   | From Version 23 to 25 | Changed | Configuration menu updated.                                                                                                                                                                 |
| 12-May-2014  | From Version 22 to 23 | Added   | Added two new modules to the Accessories section.                                                                                                                                           |
| 14-Apr-2014  | From Version 21 to 22 | Changed | Configuration was revised.                                                                                                                                                                  |
| 31-Mar-2014  | From Version 20 to 21 | Changed | Configuration was revised.                                                                                                                                                                  |
| 16-Jan-2014  | From Version 19 to 20 | Changed | Corrected the descriptions of the images.                                                                                                                                                   |
| 12-Nov-2013  | From Version 18 to 19 | Changed | Notes were revised in Configuration.                                                                                                                                                        |
| 18-Oct-2013  | From Version 17 to 18 | Changed | Configuration was revised.                                                                                                                                                                  |
| 30-Sep-2013  | From Version 16 to 17 | Added   | HPE 12504 DC Switch Chassis, HPE 125008 DC Switch Chassis, HPE 12518 AC Switch Chassis, HPE 12500 8-port 10GbE XFP LEC Module, HPE 12500 20Gbps VPN Fire Module were added to Configuration |
| 15-Jul-2013  | From Version 14 to 16 | Changed | Corrected the new Configuration section.                                                                                                                                                    |

## Summary of Changes

|             |                       |         |                                                                                                                                                       |
|-------------|-----------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10-Jun-2013 | From Version 13 to 14 | Added   | OM4 cables were added, as well as mounting kit information in the Configuration section.                                                              |
| 19-Mar-2013 | From Version 12 to 13 | Changed | Corrected the new Configuration section.                                                                                                              |
| 1-Mar-2013  | From Version 11 to 12 | Changed | Corrected the formatting in the new Configuration section.                                                                                            |
| 19-Feb-2013 | From Version 10 to 11 | Added   | Added the Configuration section, as well as several images.                                                                                           |
| 4-Dec-2012  | From Version 9 to 10  | Changed | Significant changes were made to the first half of Features and Benefits. The model specifications had minor updates, as did the Accessories section. |
| 2-Nov-2012  | From Version 8 to 9   | Changed | Updated Jumbo frames in Features and Benefits.                                                                                                        |
| 24-Sep-2012 | From Version 7 to 8   | Changed | Updated Features and Benefits, Introduction, the specifications, and Accessories.                                                                     |
| 26-Mar-2012 | From Version 6 to 7   | Changed | The Accessories and specifications sections were updated.                                                                                             |
| 13-Feb-2012 | From Version 5 to 6   | Added   | Some new modules were added.                                                                                                                          |
|             |                       | Changed | The model numbers were updated, as well as the part numbers for some of the modules.                                                                  |
| 14-Nov-2011 | From Version 4 to 5   | Changed | Changes were made throughout, including changing the title.                                                                                           |
| 7-Sep-2011  | From Version 3 to 4   | Added   | Jumps were added to the Accessory Product Details.                                                                                                    |
| 30-Aug-2011 | From Version 2 to 3   | Added   | Added the Accessories Product Details section.                                                                                                        |
| 15-Mar-2011 | From Version 1 to 2   | Changed | Accessories was revised.                                                                                                                              |

## Summary of Changes



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