Overview

Models

HP 8812 Router Chassis	JC150B
HP 8808 Router Chassis	JC149B
HP 8805 Router Chassis	JC148B

Key features

- Distributed architecture with four independent planes
- High-performance routing with up to 864 Mpps
- High-density WAN and LAN (Ethernet, 10GbE, OC-3~192)
- Carrier-class reliability
- Advanced routing, switching, and security features

Product overview

The HP 8800 Router Series is a family of high-end enterprise WAN routers that operate at the WAN edge and core layers of campus and data center locations. These routers enable high-performance WAN routing with up to 864 Mpps forwarding and up to 1.44 Tbps switching capacity.

Comprehensive WAN routing, switching, and security services are provided by the 8800 Router Series, with modular, high-density WAN/LAN options (Ethernet, 10GbE, OC-3~192, serial, etc.), and carrier-class reliability, all in a single integrated routing platform.

Ideal for high-density 10 Gigabit Ethernet deployments, the HP 8800 Router Series helps enterprises deliver high-speed applications across the WAN to all users, regardless of location.

Features and benefits

Quality of Service (QoS)

- **Hierarchical QoS (HQoS)**
  provides a built-in QoS engine that supports hierarchical QoS (HQoS) and can implement a hierarchical scheduling mechanism based on ports, user groups, users, and user services; also cooperates with MPLS traffic engineering (TE) to implement bandwidth reservation and scheduling based on tunnels and services
- **Schedule algorithm**
  supports strict priority (SP) queuing, weighted round robin (WRR) queuing, weighted fair queuing (WFQ), class-based queuing (CBQ), and low latency queuing (LLQ)
- **Congestion avoidance mechanism**
  supports tail drop and weighted random early detection (WRED)

Management

- **Management interface control**
  management access through modem port and terminal interface, as well as in-band and out-of-band Ethernet ports; provides access through terminal interface, telnet, or SSH
- **Industry-standard CLI with a hierarchical structure**
  reduces training time and expenses, and increases productivity in multivendor installations
- **Management security**

Overview

includes multiple administration levels, with password protection and restricted access to critical configuration commands; access control lists (ACLs) provide telnet and SNMP access; local and remote syslog capability allows logging of all access

- **SNMP v1, v2, and v3**
  provides complete support of SNMP as well as full support of industry-standard MIBs and private MIB extensions
- **Remote monitoring (RMON)**
  uses standard SNMP to monitor essential network functions; supports events, alarm, history, and statistics group plus a private alarm extension group
- **Debug and sampler utility**
  supports ping and traceroute for both IPv4 and IPv6
- **Network Quality Analyzer (NQA)**
  analyzes network performance and service quality by sending test packets, and provides network performance and service quality parameters such as jitter, TCP, or FTP connection delays and file transfer rates; allows a network manager to determine overall network performance and to diagnose and locate network congestion points or failures
- **Network Time Protocol (NTP)**
  synchronizes timekeeping among distributed time servers and clients; keeps timekeeping consistent among all clock-dependent devices within the network so that the devices can provide diverse applications based on the consistent time
- **Info center**
  provides a central information center for system and network information; aggregates all logs, traps, and debugging information generated by the system and maintains them in order of severity; outputs the network information to multiple channels based on
  user-defined rules
- **FTP and TFTP support**
  FTP allows bidirectional transfers over a TCP/IP network and is used for configuration updates; Trivial FTP is a simpler method using User Datagram Protocol (UDP)
- **Loopback**
  supports internal loopback testing for maintenance purposes and high availability; loopback detection protects system from incorrect cabling or network configurations, and can be enabled on a port or VLAN
- **Ethernet OAM**
  provides a monitoring tool for Layer 2 performance and fault detection, which reduces failover and network convergence times

Connectivity

- **High port density**
  provides up to 12 interface module slots, up to 192 OC3/OC12 POS ports, or 576 Gigabit Ethernet ports per 8812 system
- **Flexible port selection**
  provides a combination of fiber and copper interface modules, 100/1000BASE-X auto-speed selection, and 10/100/1000BASE-T auto-speed detection plus auto duplex and MDI/MDI-X; speed adaptable between 155 M POS and 622 M POS/Gigabit Ethernet
- **Packet storm protection**
  protects against broadcast, multicast, or unicast storms with user-defined thresholds
- **Multiple WAN interfaces**
  support Fast Ethernet/Gigabit Ethernet/10GbE ports, OC3~OC192 POS, ATM ports, and 10GbE RPR

Performance

- **Industry-leading performance**
  provides switching capacity up to 1440 Gbps and forwarding performance up to 864 Mpps
- **Flexible chassis selection**
  offers three models: 12 I/O-slot chassis, 8 I/O-slot chassis, 5 I/O-slot chassis
- **Scalable system design**
  enables smooth bandwidth upgrade

Overview

Resiliency and high availability

- **Separate data and control plane**
  provides continual services
- **Passive backplane design**
  increases system reliability as backplane has no active components
- **Redundant design of main processing unit and power supply**
  increases the overall system availability
- **IP Fast Reroute (FRR) framework**
  provides nodes that are configured with backup ports and routes; local implementation requires no cooperation of adjacent devices, simplifying deployment; solves the traditional convergence faults in IP forwarding; realizes restoration within 50 ms, with the restoration time independent of the number of routes and fast link switchovers without route convergence
- **Hitless patch upgrades**
  allow patches to be installed without restarting the equipment, increasing network uptime and facilitating maintenance
- **Virtual Router Redundancy Protocol**
  helps facilitate the system's high availability without changing configurations when a device fails; prevents network interruptions caused by a single link failure
- **Graceful restart**
  provides full support of graceful restart for OSPF, IS-IS, BGP, LDP, and RSVP; network remains stable during the active-standby switchover; after the switchover, the device quickly learns the network routes by communicating with adjacent routers; forwarding remains uninterrupted during the switchover to realize NSF
- **Hot-swappable modules**
  facilitates the replacement of hardware interface modules without impacting the traffic flow through the system
- **Bidirectional forwarding detection (BFD)**
  Enables static routing, RIP, OSPF, OSPFv3, IS-IS, IPv6 IS-IS, BGP, BGP4+, PIM, IPv6 PIM, LDP, RSVP, VPLS PW, LSP, VRRP, VRRP3, VRRPE, policy route, TE FRR, and IP FRR

Layer 2 switching

- **VLANs**
  support up to 4,096 port or IEEE 802.1Q-based VLANs
- **Spanning Tree Protocol**
  fully supports standard IEEE 802.1D Spanning Tree Protocol, IEEE 802.1w Rapid Spanning Tree Protocol for faster convergence, and IEEE 802.1s Multiple Spanning Tree Protocol
- **Bridge Protocol Data Unit (BPDU) tunneling**
  transmits Spanning Tree Protocol BPDUs transparently, allowing correct tree calculations across service providers, WANs, or MANs
- **Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) protocol snooping**
  effectively control and manage the flooding of multicast packets in a Layer 2 network
- **Port mirroring**
  duplicates port traffic (ingress and egress) to a local or remote monitoring port; supports 64 mirroring groups, with an unlimited number of ports per group
- **Port isolation**
  increases security by isolating ports within a VLAN while still allowing them to communicate with other VLANs

Layer 3 services

- **Address Resolution Protocol (ARP)**
  determines the MAC address of another IP host in the same subnet; supports static ARPs; gratuitous ARP allows detection of duplicate IP addresses; proxy ARP allows normal ARP operation between subnets or when subnets are separated by a Layer 2 network

Overview

- **User Datagram Protocol (UDP) helper**
  redirects UDP broadcasts to specific IP subnets to prevent server spoofing
- **Dynamic Host Configuration Protocol (DHCP)**
  simplifies the management of large IP networks and supports client and server; DHCP Relay enables DHCP operation across subnets
- **Domain Name System (DNS)**
  provides a distributed database that translates domain names and IP addresses, which simplifies network design; supports client and server

Layer 3 routing

- **Static IPv4 routing**
  provides simple, manually configured IPv4 routing
- **Routing Information Protocol (RIP)**
  uses a distance vector algorithm with UDP packets for route determination; supports RIPv1 and RIPv2 routing; includes loop protection
- **OSPF**
  Interior Gateway Protocol (IGP) uses link-state protocol for faster convergence; supports ECMP, NSSA, and MD5 authentication for increased security and graceful restart for faster failure recovery
- **Intermediate system to intermediate system (IS-IS)**
  Interior Gateway Protocol (IGP) uses path vector protocol, which is defined by the ISO organization for IS-IS routing and extended by IETF RFC 1195 to operate in both TCP/IP and the OSI reference model (Integrated IS-IS)
- **Static IPv6 routing**
  provides simple, manually configured IPv6 routing
- **Dual IP stack**
  maintains separate stacks for IPv4 and IPv6 to ease the transition from an IPv4-only network to an IPv6-only network design
- **Routing Information Protocol next generation (RIPng)**
  extends RIPv2 to support IPv6 addressing
- **OSPFv3**
  provides OSPF support for IPv6
- **BGP+**
  extends BGP-4 to support Multiprotocol BGP (MBGP), including support for IPv6 addressing
- **IS-IS for IPv6**
  extends IS-IS to support IPv6 addressing
- **Multiprotocol Label Switching Traffic Engineering (MPLS TE)**
  Traffic Engineering (TE) is used to enhance traffic over large MPLS networks based on type of traffic and available resources; TE dynamically tunes traffic management attributes and enables true load balancing; MPLS TE supports route backup using Fast eroute (FRR)
- **Multiprotocol Label Switching (MPLS) Layer 3 VPN**
  allows Layer 3 VPNs across a provider network; uses MP-BGP to establish private routes for increased security; supports RFC 2547bis multiple autonomous system VPNs for added flexibility
- **Multiprotocol Label Switching (MPLS) Layer 2 VPN**
  establishes simple Layer 2 point-to-point VPNs across a provider network using only MPLS Label Distribution Protocol (LDP); requires no routing and therefore decreases complexity, increases performance, and allows VPNs of non-routable protocols; uses no routing information for increased security; supports Circuit Cross Connect (CCC), Static Virtual Circuits (SVCs), Martini draft, and Kompella-draft technologies
- **Virtual Private LAN Service (VPLS)**
  establishes point-to-multipoint Layer 2 VPNs across a provider network
- **Policy routing**
  allows custom filters for increased performance and security; supports ACLs, IP prefix, AS paths, community lists, and aggregate

Overview

policies

- **Bidirectional Forwarding Detection (BFD)**
  enables link connectivity monitoring and reduces network convergence time for RIP, OSPF, BGP, IS-IS, VRRP, MPLS, and IRF
- **Multicast VPN**
  supports Multicast Domain (MD) multicast VPN, which can be distributed on separate service cards, providing high performance and flexible configuration
- **IPv6 tunneling**
  is important for the transition from IPv4 to IPv6 as it allows IPv6 packets to traverse IPv4-only networks by encapsulating the IPv6 packet into a standard IPv4 packet; supports manually configured 6to4 and Intra-Site Automatic Tunnel Addressing Protocol (ISATAP) tunnels
- **Border Gateway Protocol 4**
  Exterior Gateway Protocol (EGP) with path vector protocol uses TCP to enhance reliability for the route discovery process, reduce bandwidth consumption by advertising only incremental updates, and support extensive policies to increase flexibility and scale to large networks

Security

- **Access control list (ACL)**
  supports powerful ACLs for both IPv4 and IPv6; ACLs are used for filtering traffic to prevent unauthorized users from accessing the network, or for controlling network traffic to save resources; rules can either deny or permit traffic to be forwarded; rules can be based on a Layer 2 header or a Layer 3 protocol header; rules can be set to operate on specific dates or times
- **Network login**
  standard IEEE 802.1X allows authentication of multiple users per port, or when a port is shared with an IP phone
- **RADIUS**
  eases switch security access administration by using a password authentication server
- **TACACS+**
  is an authentication tool using TCP with encryption of the full authentication request that provides additional security
- **Media access control (MAC) authentication**
  provides simple authentication based on a user's MAC address; supports local or RADIUS-based authenticationAttack protection protects network from attacks that use a large number of ARP requests by using a host-specific, user-selectable threshold; provides Address Scanning Attack Prevention, MAC Address Flooding Attack Prevention, and STP Attack Prevention
- **Network address translation (NAT)**
  supports repeated multiplexing of a port and automatic 5-tuple collision detection, enabling NAPT to support unlimited connections; supports blacklist in NAT/NAPT/internal server, a limit on the number of connections, session log, and multi-instance
- **Secure Shell (SSHv2)**
  uses external servers to securely log in to a remote device; with authentication and encryption, it protects against IP spoofing and plain-text password interception; increases the security of Secure FTP (SFTP) transfers
- **Unicast Reverse Path Forwarding (URPF)**
  allows normal packets to be forwarded correctly, but discards the attaching packet due to lack of reverse path route or incorrect inbound interface; prevents source spoofing and distributed attacks; supports distributed URPF

Multicast support

- **Internet Group Management Protocol (IGMP)**
  Establishes and maintains multicast groups; supports v1, v2, and v3; utilizes any-source multicast (ASM) or source-specific multicast (SSM) to manage IPv4 multicast networks
- **Protocol Independent Multicast (PIM)**
  is used for IPv4 and IPv6 multicast applications; supports PIM dense mode (PIM-DM), sparse mode (PIM-SM), and source-specific mode (PIM-SSM)
- **Multicast Source Discovery Protocol (MSDP)**

Overview

is used for inter-domain multicast applications, allowing multiple PIM-SM domains to interoperate

- **Multicast Border Gateway Protocol (MBGP)**
  allows multicast traffic to be forwarded across BGP networks, separate from unicast traffic
- **Multicast Listener Discovery Protocol**
  is used by IP hosts to establish and maintain multicast groups; supports v1 and v2 and utilizes any-source multicast (ASM) or source-specific multicast (SSM) to manage IPv6 multicast networks
- **Multicast VLAN**
  allows multiple VLANs to receive the same IPv4 or IPv6 multicast traffic, reducing network bandwidth demand by decreasing multiple streams to each VLAN

Integration

- **Open application architecture**
  provides both software and hardware platform based on open standards, so third-party applications can be integrated seamlessly into HP 8800 routers

Additional information

- **Green initiative support**
  provides support for RoHS and WEEE regulations

Product architecture

- **Gbps network processor platform**
  supports wire-speed 10GbE POS and precise QoS/H-QoS and multicast VPN, making it perfect for new service expansion
- **Crossbar nonblocking switching**
  includes two crossbars on MCU to provide performance and reliability; service processing engine and crossbar work together to complete VoQ and E2E flow control and implement granular switch-fabric-level QoS, offering genuine SLA services
- **10 GbE Resilient Packet Ring (RPR)**
  provides advanced technology on MAC layer with high usage of ring bandwidth, self-healing, automatic topology discovery, and node plug and play; provides protection switching using steering or wrapping, with fast recovery time of 50 ms, satisfying the carrier-class requirement; provides weighted fair algorithm for bandwidth allocation
- **High-capacity buffer**
  provides time-delay-sensitive services, as each network processor of the 8800 router offers a 200 ms ingress buffer and a 200 ms egress buffer
- **Separate service processing engine (SPE) and interface cards**
  support flexible service configurations, as the SPE and interface cards can be upgraded separately
- **Dedicated OAM engine**
  reduces CPU loads and improves link fault detection performance; realizes 30 ms fault detection and 20 ms service switchover

Warranty and support

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

Router Chassis

HP 8805 Router Chassis JC148B

- 5 - I/O Service Engine module slots
- 2 MPU (for management modules) slots
- Must select min 1 Power Supply
- Must select Router Software License
- 11U - Height

HP 8808 Router Chassis JC149B

- 8 - I/O Service Engine module slots
- 2 MPU (for management modules) slots
- Must select min 1 Power Supply
- Must select Router Software License
- 17U - Height

HP 8812 Router Chassis JC150B

- 12 - I/O Service Engine module slots
- 2 MPU (for management modules) slots
- Must select min 1 Power Supply
- Must select Router Software License
- 22U - Height

Main Processing Units

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

HP 8800 Single Fabric MPU JC597A
See Configuration Note:2

HP 8800 Dual Fabric MPU JC596A
See Configuration Note:2

Configuration Rules:

Note 1 These modules are supported only on JC148B,JC149B,JC150B Routers.

Service Engine Modules

(JC148B Switch Only) System (std 0 // max 5) User Selection (min 0 // max 5) per Router

Configuration

(JC148B Switch Only) System (std 0 // max 5) User Selection (min 0 // max 5) per Router

(JC150B Switch Only) System (std 0 // max 12) User Selection (min 0 // max 12) per Router

HP 8800 Enh Single Proc Svc Engine Mod	JC600A See Configuration Note:1
HP 8800 Enh Dual Proc Svc Engine Mod	JC601A See Configuration Note:1
HP 8800 Single Proc Service Engine Mod	JC598A See Configuration Note:1
HP 8800 Dual Proc Service Engine Mod	JC599A See Configuration Note:2
HP 8800 16p GbE SFP/8p GbE Combo SPM • min=0 \ max=16 SFP	JC606A See Configuration Note:4
HP 8800 48-port GbE SFP Svc Proc Mod • min=0 \ max=48 SFP	JC604A See Configuration Note:4
HP 8800 48-port Gig-T Svc Proc Mod	JC603A
HP 8800 4-port 10GbE XFP Svc Proc Mod • min=0 \ max=4 XFP	JC602A See Configuration Note:3
HP 8800 2-port 10GbE XFP Svc Proc Mod • min=0 \ max=2 XFP	JC605A See Configuration Note:3
HP 8800 NAT Service Module	JC607A
HP 8800 VPN Firewall Module	JC640A
HP 8800 Network Analysis Service Module	JC608A

Configuration Rules:

Configuration

Note 1	The following Modules install into this Service Engine Module: (Min=1/Max=1) Per Service Engine Module	
	HP 8800 10-port 1000BASE-X Module	JC131A
	HP 8800 1-port 10GBASE-R/W Module	JC129A
	HP 8800 1-port OC-48/STM-16 CPOS (OC-3/STM-1) Module	JC481A
	HP 8800 2-port OC-3c/STM-1c POS / 6-port GbE Module	JC483A
	HP 8800 8-port OC-3c/OC-12c POS/GE Module	JC482A
	HP 8800 2-port OC-12c/STM-4c POS / 6-port GbE Module	JC484A
	HP 8800 4-port OC-48c / STM-16c POS SFP Module	JC486A
	HP 8800 2-port OC-48c/STM-16c POS / 4-port GbE Module	JC485A
	HP 8800 2-port OC-48c/STM-16c RPR Module	JC488A
	HP 8800 1-port OC-192c/STM-64c RPR Module	JC489A
	HP 8800 1-port OC-192c/STM-64c POS Module	JC487A
	HP 20-Port 1000Base-X A8800 Module	JC132A
	HP 20- Port Gig-T A8800 Module	JC135A
	HP 8800 1-port OC-3/STM-1 CPOS (E1/T1) / 8-port Fiber GbE Module	JC477A
	HP 8800 2-port OC-3/STM-1 CPOS E1/T1 / 8-port Fiber GbE Module	JC478A
	HP 8800 4-port OC-3/STM-1 CPOS E3/T3 / 4-port Fiber GbE Module	JC479A
	HP 8800 4-port OC-3c/STM-1c ATM Module	JC490A
	HP 8800 1-port OC-12/STM-4 CPOS (E3/T3) / 4-port Fiber GbE Module	JC480A
	HP 8800 1-port OC-12c/STM-4c ATM Module	JC491A
Note 2	The following Modules install into this Service Engine Module: (Min=1/Max=2) Per Service Engine Module	
	HP 8800 10-port 1000BASE-X Module	JC131A
	HP 8800 1-port 10GBASE-R/W Module	JC129A
	HP 8800 1-port OC-48/STM-16 CPOS (OC-3/STM-1) Module	JC481A
	HP 8800 2-port OC-3c/STM-1c POS / 6-port GbE Module	JC483A
	HP 8800 8-port OC-3c/OC-12c POS/GE Module	JC482A
	HP 8800 2-port OC-12c/STM-4c POS / 6-port GbE Module	JC484A
	HP 8800 4-port OC-48c / STM-16c POS SFP Module	JC486A
	HP 8800 2-port OC-48c/STM-16c POS / 4-port GbE Module	JC485A
	HP 8800 2-port OC-48c/STM-16c RPR Module	JC488A
	HP 8800 1-port OC-192c/STM-64c RPR Module	JC489A
	HP 8800 1-port OC-192c/STM-64c POS Module	JC487A
	HP 20-Port 1000Base-X A8800 Module	JC132A
	HP 20- Port Gig-T A8800 Module	JC135A
	HP 8800 1-port OC-3/STM-1 CPOS (E1/T1) / 8-port Fiber GbE Module	JC477A
	HP 8800 2-port OC-3/STM-1 CPOS E1/T1 / 8-port Fiber GbE Module	JC478A
	HP 8800 4-port OC-3/STM-1 CPOS E3/T3 / 4-port Fiber GbE Module	JC479A
	HP 8800 4-port OC-3c/STM-1c ATM Module	JC490A
	HP 8800 1-port OC-12/STM-4 CPOS (E3/T3) / 4-port Fiber GbE Module	JC480A
	HP 8800 1-port OC-12c/STM-4c ATM Module	JC491A
Note 3	The following Transceivers install into this Module:	
	HP X135 10G XFP LC ER Transceiver	JD121A

Configuration

	HP X130 10G XFP LC LR Single Mode 10km 1310nm Transceiver	JD108B
	HP X130 10G XFP LC SR Transceiver	JD117B
	HP X130 10G XFP LC ZR Single Mode 80km 1550nm Transceiver	JD107A
	HP X135 10G XFP LC LR Transceiver	JD088A
Note 4	The following Transceivers install into this Module:	
	HP X120 1G SFP LC SX Transceiver	JD118B
	HP X120 1G SFP LC LX Transceiver	JD119B
	HP X125 1G SFP LC LH40 1310nm Transceiver	JD061A
	HP X120 1G SFP LC LH40 1550nm Transceiver	JD062A
	HP X120 1G SFP LC LH100 Transceiver	JD103A
	HP X120 1G SFP LC BX 10-U Transceiver	JD098B
	HP X120 1G SFP LC BX 10-D Transceiver	JD099B
	HP X120 1G SFP RJ45 T Transceiver	JD089B
	HP X170 1G SFP LC LH70 1550 Transceiver	JD109A
	HP X170 1G SFP LC LH70 1570 Transceiver	JD110A
	HP X170 1G SFP LC LH70 1590 Transceiver	JD111A
	HP X170 1G SFP LC LH70 1610 Transceiver	JD112A
	HP X170 1G SFP LC LH70 1470 Transceiver	JD113A
	HP X170 1G SFP LC LH70 1490 Transceiver	JD114A

Interface Modules

(Service Engine Modules Only) User Selection (min 0 // max 1 or 2) per Module(See Modules for Port information)

HP 8800 8-port OC-3c/OC-12c POS/GE Mod • min=0 \ max=8 SFP rest	JC482A See Configuration Note:1
HP 8800 20-port 1000BASE-X Module • min=0 \ max=20 SFP	JC132B See Configuration Note:4
HP 8800 10-port 1000BASE-X Module • min=0 \ max=10 SFP	JC131A See Configuration Note:4
HP 8800 4-port OC-3c/STM-1c ATM Module • min=0 \ max=4 SFP X110	JC490A See Configuration Note:3
HP 8800 1-port OC-12c/STM-4c ATM Module • min=0 \ max=1 SFP X120	JC491A See Configuration Note:4
HP 1p OC-48/STM-16 CPOS (OC-3/STM-1) Mod	JC481A

Configuration

• min=0 \ max=1 SFP	See Configuration Note:4
HP 8800 4-p OC-48c/STM-16c POS SFP Mod	JC486A
• min=0 \ max=4 SFP	See Configuration Note:4
HP 8800 2-port OC-48c/STM-16c RPR Mod	JC488A
• min=0 \ max=2 SFP	See Configuration Note:4
HP 1p OC-3/STM-1 CPOS / 8p Fiber GbE Mod	JC477A
• min=0 \ max=1 SFP 100M and min=0 \ max=8 SFP 1G	See Configuration Note:3, 4
HP 8800 2p OC-3/STM-1 CPOS/8p FbrGbE Mod	JC478A
• min=0 \ max=2 SFP 100M and min=0 \ max=8 SFP 1G	See Configuration Note:3, 4
HP 8800 4p OC-3/STM-1 CPOS/4p FbrGbE Mod	JC479A
• min=0 \ max=4 SFP 100M and min=0 \ max=8 SFP 1G	See Configuration Note:3, 4
HP 1p OC-12/STM-4 CPOS / 4p Fbr GbE Mod	JC480A
• min=0 \ max=6 SFP	See Configuration Note:4
HP 8800 2p OC-48c/STM-16c POS/4p GbE Mod	JC485A
• min=0 \ max=2 SFP 2.5G and min=0 \ max=4 SFP 1G	See Configuration Note:4, 5
HP 8800 2p OC-12c/STM-4c POS /6p GbE Mod	JC484A
• min=0 \ max=2 SFP 622m and min=0 \ max=6 SFP 1G	See Configuration Note:4
HP 8800 2p OC-3c/STM-1c POS / 6p GbE Mod	JC483A
• min=0 \ max=2 SFP 100m and min=0 \ max=6 SFP 1G	See Configuration Note:3, 4
HP 8800 1-port 10GBASE-R/W Module	JC129A
• min=0 \ max=1 XFP	See Configuration Note:6
HP 8800 1-port OC-192c/STM-64c RPR Mod	JC489A
• min=0 \ max=1 XFP	See Configuration Note:6

Configuration

HP 8800 1-port OC-192c/STM-64c POS Mod	JC487A
• min=0 \ max=1 XFP	See Configuration Note:6

Configuration Rules

Note 1	The following Transceivers install into this Module:	
	HP X120 1G SFP LC SX Transceiver	JD118B
	HP X120 1G SFP LC LX Transceiver	JD119B
	HP X125 1G SFP LC LH40 1310nm Transceiver	JD061A
	HP X120 1G SFP LC LH40 1550nm Transceiver	JD062A
	HP X120 1G SFP LC LH100 Transceiver	JD103A
	HP X120 1G SFP RJ45 T Transceiver	JD089B
	HP X120 1G SFP LC BX 10-U Transceiver	JD098B
	HP X120 1G SFP LC BX 10-D Transceiver	JD099B
	HP X125 1G SFP LC LH70 Transceiver	JD063B
	HP X115 100M SFP LC FX Transceiver	JD102B
	HP X110 100M SFP LC LX Transceiver	JD120B
	HP X110 100M SFP LC LH40 Transceiver	JD090A
	HP X110 100M SFP LC LH80 Transceiver	JD091A
	HP X170 1G SFP LC LH70 1550 Transceiver	JD109A
	HP X170 1G SFP LC LH70 1570 Transceiver	JD110A
	HP X170 1G SFP LC LH70 1590 Transceiver	JD111A
	HP X170 1G SFP LC LH70 1610 Transceiver	JD112A
	HP X170 1G SFP LC LH70 1470 Transceiver	JD113A
	HP X170 1G SFP LC LH70 1490 Transceiver	JD114A
	HP X170 1G SFP LC LH70 1510 Transceiver	JD115A
	HP X170 1G SFP LC LH70 1530 Transceiver	JD116A
	HP X120 622M SFP LC LX 15km Transceiver	JF829A
	HP X120 622M SFP LC LH 40km 1310 Transceiver	JF830A
	HP X120 622M SFP LC LH 80km 1550 Transceiver	JF831A
Note 2	The following Transceivers install into this Module:	
	HP X115 100M SFP LC FX Transceiver	JD102B
	HP X110 100M SFP LC LX Transceiver	JD120B
	HP X110 100M SFP LC LH40 Transceiver	JD090A
	HP X110 100M SFP LC LH80 Transceiver	JD091A
Note 3	The following Transceivers install into this Module:	
	HP X115 100M SFP LC FX Transceiver	JD102B
	HP X110 100M SFP LC LX Transceiver	JD120B
	HP X110 100M SFP LC LH40 Transceiver	JD090A
	HP X110 100M SFP LC LH80 Transceiver	JD091A
Note 4	The following Transceivers install into this Module:	

Configuration

	HP X120 1G SFP LC SX Transceiver	JD118B
	HP X120 1G SFP LC LX Transceiver	JD119B
	HP X125 1G SFP LC LH40 1310nm Transceiver	JD061A
	HP X120 1G SFP LC LH40 1550nm Transceiver	JD062A
	HP X120 1G SFP LC LH100 Transceiver	JD103A
	HP X120 1G SFP LC BX 10-U Transceiver	JD098B
	HP X120 1G SFP LC BX 10-D Transceiver	JD099B
Note 5	The following Transceivers install into this Module:	
	HP X160 2.5G SFP LC 2km Transceiver	JD084A
	HP X160 2.5G SFP LC 15km Transceiver	JD085A
	HP X160 2.5G SFP LC 40km Transceiver	JD086A
	HP X160 2.5G SFP LC 80km Transceiver	JD087A
Note 6	The following Transceivers install into this Module:	
	HP X135 10G XFP LC ER Transceiver	JD121A
	HP X130 10G XFP LC LR Single Mode 10km 1310nm Transceiver	JD108B
	HP X130 10G XFP LC LR Single Mode 10km 1310nm Transceiver	JD108B
	HP X130 10G XFP LC SR Transceiver	JD117B
	HP X130 10G XFP LC ZR Single Mode 80km 1550nm Transceiver	JD107A
	HP X135 10G XFP LC LR Transceiver	JD088A

Transceivers

SFP Transceivers

HP X110 100M SFP LC LX Transceiver	JD120B
HP X110 100M SFP LC LH40 Transceiver	JD090A
HP X110 100M SFP LC LH80 Transceiver	JD091A
HP X115 100M SFP LC FX Transceiver	JD102B
HP X120 622M SFP LC LX 15km Transceiver	JF829A
HP X120 622M SFP LC LH 80km 1550 XCVR	JF831A
HP X120 622M SFP LC LH 40km 1310 XCVR	JF830A
HP X120 1G SFP LC LH40 1550nm XCVR	JD062A
HP X120 1G SFP LC LH100 Transceiver	JD103A
HP X120 1G SFP LC SX Transceiver	JD118B
HP X120 1G SFP LC LX Transceiver	JD119B
HP X120 1G SFP RJ45 T Transceiver	JD089B
HP X120 1G SFP LC BX 10-U Transceiver	JD098B
HP X120 1G SFP LC BX 10-D Transceiver	JD099B
HP X125 1G SFP LC LH40 1310nm XCVR	JD061A
HP X125 1G SFP LC LH70 Transceiver	JD063B
HP X170 1G SFP LC LH70 1550 Transceiver	JD109A
HP X170 1G SFP LC LH70 1570 Transceiver	JD110A
HP X170 1G SFP LC LH70 1590 Transceiver	JD111A

Configuration

HP X170 1G SFP LC LH70 1610 Transceiver	JD112A
HP X170 1G SFP LC LH70 1470 Transceiver	JD113A
HP X170 1G SFP LC LH70 1490 Transceiver	JD114A
HP X170 1G SFP LC LH70 1510 Transceiver	JD115A
HP X170 1G SFP LC LH70 1530 Transceiver	JD116A
HP X160 2.5G SFP LC 2km Transceiver	JD084A
HP X160 2.5G SFP LC 15km Transceiver	JD085A
HP X160 2.5G SFP LC 40km Transceiver	JD086A
HP X160 2.5G SFP LC 80km Transceiver	JD087A

XFP Transceivers

HP X130 10G XFP LC LR 1310nm Transceiver	JD108B
HP X130 10G XFP LC SR Transceiver	JD117B
HP X130 10G XFP LC ZR 1550nm Transceiver	JD107A
HP X135 10G XFP LC ER Transceiver	JD121A
HP X135 10G XFP LC LR Transceiver	JD088A

Internal Power Supplies

Power Supplies

HP 9500/8800 1800W AC Power Supply • includes 1 x c19, 1800w	JC110B See Configuration Note:1, 2, 3
HP 9500/8800 2000W DC Power Supply	JC029B See Configuration Note:1
HP 9500/8800 3500W DC Power Supply	JC473A See Configuration Note:1

Configuration Rules:

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

Note 2 Localization required. (See Localization Menu for list.)

Note 3 If this Power Supply is selected, Then the JC11A - HP A9500 3500W AC Power Frame is required.

Power Frame option

System (std 0 // max 1) User Selection (min 0 // max 1) per switch enclosure

HP 9500 3500W AC Power Frame	JC111A

Cables

HP X230 SIS 50cm CX4 Cable	JD341A
HP X260 E1 RJ45 120 ohm 3m Router Cable	JC126A
HP X260 E1 BNC 75 ohm 3m Router Cable	JC127A
HP X260 T1 RJ45 100 ohm 3m Router Cable	JC128A
HP X260 E1 RJ45 120 ohm 30m Router Cable	JC152A
HP X260 E1 RJ45 120 ohm 15m Router Cable	JC151A
HP X260 E1 RJ45 120 ohm 2m Router Cable	JC156A
HP X260 T1 Router Cable	JD518A
HP X260 E1 BNC Extend 20m Router Cable	JC155A
HP X260 E1 BNC Extend 15m Router Cable	JC154A
HP X260 E1 BNC Extend 10m Router Cable	JC153A
HP X260 E1 RJ45 BNC 75-120 ohm Conversion Router Cable	JD511A

Configuration Rules:

Remarks: The following cable is used for RJ45 BNC Conversion
JD511A - HP X260 E1 RJ45 BNC 75-120 ohm Conversion Router Cable

Switch Enclosure Options

Compact Flash cards

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

HP X600 1G Compact Flash Card	JC684A See Configuration Note:1
HP X600 512M Compact Flash Card	JC685A See Configuration Note:1
HP X600 256M Compact Flash Card	JC686A See Configuration Note:1

Configuration Rules:

Configuration

Note 1	These memory options are supported on the following Modules only:	
	HP A8800 Single Fabric Main Processing Unit	JC597A
	HP A8800 Dual Fabric Main Processing Unit	JC596A

MPU Memory

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

HP 8800 1GB SDRAM	JC136A See Configuration Note:1
HP 2GB Registered DDR2 SDRAM Memory	JC609A See Configuration Note:1

Configuration Rules:

Note 1	These memory options are supported on the following Modules only:	
	HP A8800 Single Fabric Main Processing Unit	JC597A
	HP A8800 Dual Fabric Main Processing Unit	JC596A

Router Software License

User Selection (min 1 // max 1) per switch enclosure

HP 8800 Router Software License	JC157A

Mounting Kit

HP X421 Chassis Universal 4-post Rack Mounting Kit	JC665A

Technical Specifications

HP 8812 Router Chassis (JC150B)

Ports	12 I/O module slots	
	2 MPU (for management modules) slots	
Physical characteristics	**Dimensions**	17.4(w) x 17.72(d) x 29.65(h) in (44.2 x 45.01 x 75.31 cm) (17U height)
	Full configuration weight	264.55 lb (120 kg)
Mounting	EIA standard 19 in. rack	
Performance	**Throughput**	up to 864 million pps
	Routing/Switching capacity	1.4 Tbps
	Routing table size	3000000 entries
Environment	**Operating temperature**	32°F to 113°F (0°C to 45°C)
	Operating relative humidity	10% to 90%, noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
Electrical characteristics	**Maximum heat dissipation**	11935 BTU/hr (12591.43 kJ/hr)
	Voltage	100-120 / 200-240 VAC
	DC Voltage	-48 VDC
	Maximum power rating	3500 W
	Frequency	50/60 Hz
	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	CSA 22.2 No. 60950; cUL (CSA 22.2 No. 60950); CSA 22.2 No. 60950 3rd edition; CSA 22.2 No. 950; CSA 950; cUL (CSA 950); EN 60950/IEC 60950; UL 1950 3rd edition; UL 1950; UL 60950; UL 60950-1; CAN/CSA 22.2 No. 60950; CAN/CSA 22.2 No. 60950-1; AS/NZS 60950; EN 609500 Safety Information Technology Equipment; UL 60950; CSA 22.2 No. 60950/cUL; IEC 60950; IEC 60950-1; EN 60950; EN 60950-1; CSA 22.2 No. 950-95; IEC 60950-1:2001 (with CB Report); CAN/CSA-C22.2 No. 60950-1; CSA 60950-1; CSA C22.2 60950-1; EN 60950-1/A11; CSA 22.2 60950-1; EN 60950: 2000, ZB and ZC Deviations; IEC 60950: 1999, Corr Feb 2000, all national deviations; As/NZS 60950:2000, Australia; UL 60950-1:2003; UL 60950-1:2001; CSA 22.2 60950-1:2003; IEC 60950-1:2001; EN 60950-1:2001; CSA 22.2-60950; AS/NZS 60950: 2000 Australia, Russian GOST Safety Approval; CSA 22.2 No. 950 3rd Edition 1995; UL 60950 3rd Edition; CAN/CSA 22.2 No. 60950-00/UL 60950 3rd Edition, Safety Information for Technology Equipment; EN 60950/IEC 60950 3rd Edition; UL 60950 Standard for the Safety of Information Technology Equipment	
Emissions	FCC Class A; FCC part 15 Class A; ICE-003, Canadian Radio Interface Regulation; EN 55022/CISPR-22 Class A; VCCI Class A; EN 55022/CISPR 22 Class A; EN 55022 Class A; CISPR 22; CISPR 22 Class A; EN 55022; EN 55024; CNS 13438 Class B; FCC CFR 47 Part 15; VCCI; ICES-003 (Canada); CISPR 22/A2; EN 55022/A2; ICES-003; AS/NZS CISPR 22; VCCI V-3/2000.04; IEC/EN 61000-3-2; IEC/EN 61000-3-3; EN 55024/A1; IEC 61000:4-2, 4-3, 4-4, 4-5, 4-6, 4-8, 4-11; EMC Directive 89/336/EEC; VCCI (Japan); EN 55022 1998 Class A; EN 61000-3-2 2000, 61000-3-3; ICES-003 Class A; EN 300 386; FCC Part 15; CISPR 24; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-3-2; EN 61000-3-3; CNS 13438	

Technical Specifications

	Class A; EN 55024:1998; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-4-11; Anatel; ICES-003 Issue 4 Class A; CS-03; FCC Part 68
Management	IMC - Intelligent Management Center; command-line interface; limited command-line interface; configuration menu; out-of-band management (serial RS-232C); out-of-band management; SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; terminal interface (serial RS-232C); modem interface; IEEE 802.3 Ethernet MIB; Ethernet Interface MIB
Services	Refer to the HP website at **www.hp.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP 8808-V Router Chassis (JC149B)

Ports	8 I/O module slots	
	2 MPU (for management modules) slots	
Physical characteristics	**Dimensions**	17.4(w) x 17.72(d) x 34.88(h) in (44.2 x 45.01 x 88.6 cm) (21U height)
	Full configuration weight	242.5 lb (110 kg)
Mounting	EIA standard 19 in. rack	
Performance	**Throughput**	up to 576 million pps
	Routing/Switching capacity	960 Gbps
	Routing table size	3000000 entries
Environment	**Operating temperature**	32°F to 113°F (0°C to 45°C)
	Operating relative humidity	10% to 90%, noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
Electrical characteristics	**Maximum heat dissipation**	11935 BTU/hr (12591.43 kJ/hr)
	Voltage	100-120/200-240 VAC
	DC Voltage	-48 VDC
	Maximum power rating	3500 W
	Frequency	50/60 Hz
	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	CSA 22.2 No. 60950; cUL (CSA 22.2 No. 60950); CSA 22.2 No. 60950 3rd edition; CSA 22.2 No. 950; CSA 950; cUL (CSA 950); EN 60950/IEC 60950; UL 1950 3rd edition; UL 1950; UL 60950; UL 60950-1; CAN/CSA 22.2 No. 60950; CAN/CSA 22.2 No. 60950-1; AS/NZS 60950; EN 609500 Safety Information Technology Equipment; UL 60950; CSA 22.2 No. 60950/cUL; IEC 60950; IEC 60950-1; EN 60950; EN 60950-1; CSA 22.2 No. 950-95; IEC 60950-1:2001 (with CB Report); CAN/CSA-C22.2 No. 60950-1; CSA 60950-1; CSA C22.2 60950-1; EN 60950-1/A11; CSA 22.2 60950-1; EN 60950: 2000, ZB and ZC Deviations; IEC 60950: 1999, Corr Feb 2000, all national deviations; As/NZS 60950:2000, Australia; UL 60950-1:2003; UL 60950-1:2001; CSA 22.2 60950-1:2003; IEC 60950-1:2001; EN 60950-1:2001; CSA 22.2-60950; AS/NZS 60950: 2000 Australia, Russian GOST Safety Approval; CSA 22.2 No. 950 3rd Edition	

Technical Specifications

	1995; UL 60950 3rd Edition; CAN/CSA 22.2 No. 60950-00/UL 60950 3rd Edition, Safety Information for Technology Equipment; EN 60950/IEC 60950 3rd Edition; UL 60950 Standard for the Safety of Information Technology Equipment
Emissions	FCC Class A; FCC part 15 Class A; ICE-003, Canadian Radio Interface Regulation; EN 55022/CISPR-22 Class A; VCCI Class A; EN 55022/CISPR 22 Class A; EN 55022 Class A; CISPR 22; CISPR 22 Class A; EN 55022; EN 55024; CNS 13438 Class B; FCC CFR 47 Part 15; VCCI; ICES-003 (Canada); CISPR 22/A2; EN 55022/A2; ICES-003; AS/NZS CISPR 22; VCCI V-3/2000.04; IEC/EN 61000-3-2; IEC/EN 61000-3-3; EN 55024/A1; IEC 61000:4-2, 4-3, 4-4, 4-5, 4-6, 4-8, 4-11; EMC Directive 89/336/EEC; VCCI (Japan); EN 55022 1998 Class A; EN 61000-3-2 2000, 61000-3-3; ICES-003 Class A; EN 300 386; FCC Part 15; CISPR 24; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-3-2; EN 61000-3-3; CNS 13438 Class A; EN 55024:1998; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-4-11; Anatel; ICES-003 Issue 4 Class A; CS-03; FCC Part 68
Management	IMC - Intelligent Management Center; command-line interface; limited command-line interface; configuration menu; out-of-band management (serial RS-232C); out-of-band management; SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; terminal interface (serial RS-232C); modem interface; IEEE 802.3 Ethernet MIB; Ethernet Interface MIB
Services	Refer to the HP website at **www.hp.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP 8805 Router Chassis (JC148B)

Ports	5 I/O module slots	
	2 MPU (for management modules) slots	
Physical characteristics	**Dimensions**	17.4(w) x 17.72(d) x 19.13(h) in (44.2 x 45.01 x 48.59 cm) (11U height)
	Full configuration weight	187.39 lb (85 kg)
Mounting	EIA standard 19 in. rack	
Performance	**Throughput**	up to 360 million pps
	Routing/Switching capacity	600 Gbps
	Routing table size	3000000 entries
Environment	**Operating temperature**	32°F to 113°F (0°C to 45°C)
	Operating relative humidity	10% to 90%, noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
Electrical characteristics	**Maximum heat dissipation**	6820 BTU/hr (7195.1 kJ/hr)
	Voltage	100-120/200-240 VAC
	DC Voltage	-48 VDC
	Maximum power rating	2000 W
	Frequency	50/60 Hz

Technical Specifications

	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	CSA 22.2 No. 60950; cUL (CSA 22.2 No. 60950); CSA 22.2 No. 60950 3rd edition; CSA 22.2 No. 950; CSA 950; cUL (CSA 950); EN 60950/IEC 60950; UL 1950 3rd edition; UL 1950; UL 60950; UL 60950-1; CAN/CSA 22.2 No. 60950; CAN/CSA 22.2 No. 60950-1; AS/NZS 60950; EN 609500 Safety Information Technology Equipment; UL 60950; CSA 22.2 No. 60950/cUL; IEC 60950; IEC 60950-1; EN 60950; EN 60950-1; CSA 22.2 No. 950-95; IEC 60950-1:2001 (with CB Report); CAN/CSA-C22.2 No. 60950-1; CSA 60950-1; CSA C22.2 60950-1; EN 60950-1/A11; CSA 22.2 60950-1; EN 60950: 2000, ZB and ZC Deviations; IEC 60950: 1999, Corr Feb 2000, all national deviations; As/NZS 60950:2000, Australia; UL 60950-1:2003; UL 60950-1:2001; CSA 22.2 60950-1:2003; IEC 60950-1:2001; EN 60950-1:2001; CSA 22.2-60950; AS/NZS 60950: 2000 Australia, Russian GOST Safety Approval; CSA 22.2 No. 950 3rd Edition 1995; UL 60950 3rd Edition; CAN/CSA 22.2 No. 60950-00/UL 60950 3rd Edition, Safety Information for Technology Equipment; EN 60950/IEC 60950 3rd Edition; UL 60950 Standard for the Safety of Information Technology Equipment	
Emissions	FCC Class A; FCC part 15 Class A; ICE-003, Canadian Radio Interface Regulation; EN 55022/CISPR-22 Class A; VCCI Class A; EN 55022/CISPR 22 Class A; EN 55022 Class A; CISPR 22; CISPR 22 Class A; EN 55022; EN 55024; CNS 13438 Class B; FCC CFR 47 Part 15; VCCI; ICES-003 (Canada); CISPR 22/A2; EN 55022/A2; ICES-003; AS/NZS CISPR 22; VCCI V-3/2000.04; IEC/EN 61000-3-2; IEC/EN 61000-3-3; EN 55024/A1; IEC 61000:4-2, 4-3, 4-4, 4-5, 4-6, 4-8, 4-11; EMC Directive 89/336/EEC; VCCI (Japan); EN 55022 1998 Class A; EN 61000-3-2 2000, 61000-3-3; ICES-003 Class A; EN 300 386; FCC Part 15; CISPR 24; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-3-2; EN 61000-3-3; CNS 13438 Class A; EN 55024:1998; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-4-11; Anatel; ICES-003 Issue 4 Class A; CS-03; FCC Part 68	
Management	IMC - Intelligent Management Center; command-line interface; limited command-line interface; configuration menu; out-of-band management (serial RS-232C); out-of-band management; SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; terminal interface (serial RS-232C); modem interface; IEEE 802.3 Ethernet MIB; Ethernet Interface MIB	
Services	Refer to the HP website at **www.hp.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	

Standards and protocols (applies to all products in series)	**BGP**	**IP multicast**
	RFC 1267 Border Gateway Protocol 3 (BGP-3)	RFC 1112 IGMP
	RFC 1657 Definitions of Managed Objects for BGPv4	RFC 2236 IGMPv2
	RFC 1771 BGPv4	RFC 2283 Multiprotocol Extensions for BGP-4
	RFC 1772 Application of the BGP	RFC 2362 PIM Sparse Mode
	RFC 1773 Experience with the BGP-4 Protocol	RFC 2934 Protocol Independent Multicast MIB for IPv4
	RFC 1774 BGP-4 Protocol Analysis	RFC 3376 IGMPv3
	RFC 1965 BGP4 confederations	RFC 3376 IGMPv3 (host joins only)
	RFC 1997 BGP Communities Attribute	RFC 3569 An Overview of Source-Specific Multicast (SSM)
	RFC 1998 PPP Gandalf FZA Compression Protocol	RFC 3618 Multicast Source Discovery Protocol (MSDP)
	RFC 2385 BGP Session Protection via TCP MD5	RFC 3973 Draft 2 PIM Dense Mode
	RFC 2439 BGP Route Flap Damping	RFC 3973 Draft 2 PIM Dense Mode
	RFC 2796 BGP Route Reflection	RFC 3973 PIM Dense Mode
	RFC 2842 Capability Advertisement with BGP-4	RFC 4601 Draft 10 PIM Sparse Mode
	RFC 2858 BGP-4 Multi-Protocol Extensions	RFC 4605 IGMP/MLD Proxying
	RFC 2918 Route Refresh Capability	
	Denial of service protection	

CPU DoS Protection
Rate Limiting by ACLs

Device management
RFC 1155 Structure and Mgmt Information (SMIv1)
RFC 1157 SNMPv1/v2c
RFC 1305 NTPv3
RFC 1901 (Community based SNMPv2)
RFC 1901-1907 SNMPv2c, SMIv2 and Revised MIB-II
RFC 1902 (SNMPv2)
RFC 1908 (SNMP v1/2 Coexistence)
RFC 1945 Hypertext Transfer Protocol -- HTTP/1.0
RFC 2068 Hypertext Transfer Protocol -- HTTP/1.1
RFC 2271 FrameWork
RFC 2452 MIB for TCP6
RFC 2454 MIB for UDP6
RFC 2573 (SNMPv3 Applications)
RFC 2576 (Coexistence between SNMP V1, V2, V3)
RFC 2578-2580 SMIv2
RFC 2579 (SMIv2 Text Conventions)
RFC 2580 (SMIv2 Conformance)
RFC 2819 (RMON groups Alarm, Event, History and Statistics only)
RFC 2819 RMON
RFC 3410 (Management Framework)
RFC 3416 (SNMP Protocol Operations v2)
RFC 3417 (SNMP Transport Mappings)
Multiple Configuration Files
Multiple Software Images
SNMP v3 and RMON RFC support
SSHv1/SSHv2 Secure Shell
TACACS/TACACS+

General protocols
IEEE 802.1ad Q-in-Q
IEEE 802.1ad Q-in-Q
IEEE 802.1ag Service Layer OAM
IEEE 802.1ah Provider Backbone Bridges
IEEE 802.1AX-2008 Link Aggregation
IEEE 802.1D MAC Bridges
IEEE 802.1p Priority
IEEE 802.1Q (GVRP)
IEEE 802.1Q VLANs
IEEE 802.1s (MSTP)
IEEE 802.1s Multiple Spanning Trees
IEEE 802.1v VLAN classification by Protocol and Port
IEEE 802.1w Rapid Reconfiguration of Spanning Tree
IEEE 802.1X PAE
IEEE 802.3 Type 10BASE-T
IEEE 802.3ab 1000BASE-T
IEEE 802.3ac (VLAN Tagging Extension)

IPv6
RFC 1350 TFTP
RFC 1881 IPv6 Address Allocation Management
RFC 1886 DNS Extension for IPv6
RFC 1887 IPv6 Unicast Address Allocation Architecture
RFC 1981 IPv6 Path MTU Discovery
RFC 2080 RIPng for IPv6
RFC 2292 Advanced Sockets API for IPv6
RFC 2373 IPv6 Addressing Architecture
RFC 2375 IPv6 Multicast Address Assignments
RFC 2460 IPv6 Specification
RFC 2461 IPv6 Neighbor Discovery
RFC 2462 IPv6 Stateless Address Auto-configuration
RFC 2463 ICMPv6
RFC 2464 Transmission of IPv6 over Ethernet Networks
RFC 2472 IP Version 6 over PPP
RFC 2473 Generic Packet Tunneling in IPv6
RFC 2475 IPv6 DiffServ Architecture
RFC 2529 Transmission of IPv6 Packets over IPv4
RFC 2545 Use of MP-BGP-4 for IPv6
RFC 2553 Basic Socket Interface Extensions for IPv6
RFC 2710 Multicast Listener Discovery (MLD) for IPv6
RFC 2711 IPv6 Router Alert Option
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 2925 Remote Operations MIB (Ping only)
RFC 3056 Connection of IPv6 Domains via IPv4 Clouds
RFC 3162 RADIUS and IPv6
RFC 3306 Unicast-Prefix-based IPv6 Multicast Addresses
RFC 3307 IPv6 Multicast Address Allocation
RFC 3315 DHCPv6 (client and relay)
RFC 3315 DHCPv6 (client only)
RFC 3484 Default Address Selection for IPv6
RFC 3493 Basic Socket Interface Extensions for IPv6
RFC 3513 IPv6 Addressing Architecture
RFC 3542 Advanced Sockets API for IPv6
RFC 3587 IPv6 Global Unicast Address Format
RFC 3596 DNS Extension for IPv6
RFC 3810 MLDv2 (host joins only)
RFC 3810 MLDv2 for IPv6
RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6

IEEE 802.3ad Link Aggregation (LAG)
IEEE 802.3ad Link Aggregation Control Protocol (LACP)
IEEE 802.3ae 10-Gigabit Ethernet
IEEE 802.3ag Ethernet OAM
IEEE 802.3ah Ethernet in First Mile over Point to Point
Fiber - EFMF
IEEE 802.3i 10BASE-T
IEEE 802.3u 100BASE-X
IEEE 802.3x Flow Control
IEEE 802.3z 1000BASE-X
RFC 768 UDP
RFC 783 TFTP Protocol (revision 2)
RFC 791 IP
RFC 792 ICMP
RFC 793 TCP
RFC 826 ARP
RFC 854 TELNET
RFC 855 Telnet Option Specification
RFC 856 TELNET
RFC 857 Telnet Echo Option
RFC 858 Telnet Suppress Go Ahead Option
RFC 894 IP over Ethernet
RFC 896 Congestion Control in IP/TCP Internetworks
RFC 906 TFTP Bootstrap
RFC 925 Multi-LAN Address Resolution
RFC 950 Internet Standard Subnetting Procedure
RFC 951 BOOTP
RFC 959 File Transfer Protocol (FTP)
RFC 1006 ISO transport services on top of the TCP: Version 3
RFC 1027 Proxy ARP
RFC 1034 Domain Concepts and Facilities
RFC 1035 Domain Implementation and Specification
RFC 1042 IP Datagrams
RFC 1058 RIPv1
RFC 1071 Computing the Internet Checksum
RFC 1091 Telnet Terminal-Type Option
RFC 1093 NSFNET routing architecture
RFC 1122 Host Requirements
RFC 1141 Incremental updating of the Internet checksum
RFC 1142 OSI IS-IS Intra-domain Routing Protocol
RFC 1144 Compressing TCP/IP headers for low-speed
serial links
RFC 1171 Point-to-Point Protocol for the transmission
of multi-protocol datagrams over Point-to-Point links
RFC 4022 MIB for TCP
RFC 4113 MIB for UDP
RFC 4251 SSHv6 Architecture
RFC 4252 SSHv6 Authentication
RFC 4252 SSHv6 Transport Layer
RFC 4253 SSHv6 Transport Layer
RFC 4254 SSHv6 Connection
RFC 4291 IP Version 6 Addressing Architecture
RFC 4293 MIB for IP
RFC 4419 Key Exchange for SSH
RFC 4443 ICMPv6
RFC 4541 IGMP & MLD Snooping Switch
RFC 4861 IPv6 Neighbor Discovery
RFC 4862 IPv6 Stateless Address Auto-configuration
RFC 5095 Deprecation of Type 0 Routing Headers in IPv6
RFC 5340 OSPF for IPv6
RFC 5340 OSPFv3 for IPv6
RFC 5722 Handling of Overlapping IPv6 Fragments

MIBs

IEEE 8021-PAE-MIB
IEEE 8023-LAG-MIB
RFC 1156 (TCP/IP MIB)
RFC 1212 Concise MIB Definitions
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
RFC 1650 Ethernet-Like MIB
RFC 1657 BGP-4 MIB
RFC 1724 RIPv2 MIB
RFC 1757 Remote Network Monitoring MIB
RFC 1850 OSPFv2 MIB
RFC 1907 SNMPv2 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 Interface MIB
RFC 2233 Interfaces MIB
RFC 2273 SNMP-NOTIFICATION-MIB
RFC 2452 IPV6-TCP-MIB
RFC 2454 IPV6-UDP-MIB
RFC 2465 IPv6 MIB
RFC 2466 ICMPv6 MIB
RFC 2571 SNMP Framework MIB
RFC 2572 SNMP-MPD MIB

Technical Specifications

RFC 1195 OSI ISIS for IP and Dual Environments
RFC 1213 Management Information Base for Network
Management of TCP/IP-based internets
RFC 1253 (OSPF v2)
RFC 1256 ICMP Router Discovery Protocol (IRDP)
RFC 1293 Inverse Address Resolution Protocol
RFC 1305 NTPv3
RFC 1315 Management Information Base for Frame Relay DTEs
RFC 1321 The MD5 Message-Digest Algorithm
RFC 1332 The PPP Internet Protocol Control Protocol
(IPCP)
RFC 1333 PPP Link Quality Monitoring
RFC 1334 PPP Authentication Protocols (PAP)
RFC 1349 Type of Service
RFC 1350 TFTP Protocol (revision 2)
RFC 1377 The PPP OSI Network Layer Control Protocol
(OSINLCP)
RFC 1381 SNMP MIB Extension for X.25 LAPB
RFC 1389 RIPv2 MIB Extension
RFC 1471 The Definitions of Managed Objects for the Link Control Protocol of the Point-to-Point Protocol
RFC 1472 The Definitions of Managed Objects for the Security Protocols of the Point-to-Point Protocol
RFC 1490 Multiprotocol Interconnect over Frame Relay
RFC 1519 CIDR
RFC 1531 Dynamic Host Configuration Protocol
RFC 1533 DHCP Options and BOOTP Vendor Extensions
RFC 1534 DHCP/BOOTP Interoperation
RFC 1541 DHCP
RFC 1542 BOOTP Extensions
RFC 1542 Clarifications and Extensions for the Bootstrap
Protocol
RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP)
RFC 1577 Classical IP and ARP over ATM
RFC 1631 NAT
RFC 1638 PPP Bridging Control Protocol (BCP)
RFC 1661 The Point-to-Point Protocol (PPP)
RFC 1662 PPP in HDLC-like Framing
RFC 1695 Definitions of Managed Objects for ATM Management Version 8.0 using SMIv2
RFC 1701 Generic Routing Encapsulation
RFC 1702 Generic Routing Encapsulation over IPv4 networks
RFC 2573 SNMP-Notification MIB
RFC 2573 SNMP-Target MIB
RFC 2574 SNMP USM MIB
RFC 2618 RADIUS Client MIB
RFC 2620 RADIUS Accounting MIB
RFC 2665 Ethernet-Like-MIB
RFC 2668 802.3 MAU MIB
RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
RFC 2688 MAU-MIB
RFC 2737 Entity MIB (Version 2)
RFC 2787 VRRP MIB
RFC 2819 RMON MIB
RFC 2863 The Interfaces Group MIB
RFC 2925 Ping MIB
RFC 2932IP (Multicast Routing MIB)
RFC 2933 IGMP MIB
RFC 3273 HC-RMON MIB
RFC 3414 SNMP-User based-SM MIB
RFC 3415 SNMP-View based-ACM MIB
RFC 3418 MIB for SNMPv3
RFC 3621 Power Ethernet MIB
RFC 3813 MPLS LSR MIB
RFC 3814 MPLS FTN MIB
RFC 3815 MPLS LDP MIB
RFC 3826 AES for SNMP's USM MIB
RFC 4113 UDP MIB
RFC 4133 Entity MIB (Version 3)
RFC 4221 MPLS FTN MIB
LLDP-EXT-DOT1-MIB
LLDP-EXT-DOT3-MIB
LLDP-MIB

Network management

IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
IEEE 802.1D (STP)
RFC 1098 A Simple Network Management Protocol (SNMP)
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 1901 SNMPv2 Introduction
RFC 1902 SNMPv2 Structure
RFC 1903 SNMPv2 Textual Conventions
RFC 1904 SNMPv2 Conformance
RFC 1905 SNMPv2 Protocol Operations
RFC 1906 SNMPv2 Transport Mappings
RFC 1918 Private Internet Address Allocation
RFC 2272 SNMPv3 Management Protocol
RFC 2273 SNMPv3 Applications

RFC 1721 RIP-2 Analysis
RFC 1722 RIP-2 Applicability
RFC 1723 RIP v2
RFC 1812 IPv4 Routing
RFC 1829 The ESP DES-CBC Transform
RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses
RFC 1944 Benchmarking Methodology for Network Interconnect Devices
RFC 1945 Hypertext Transfer Protocol -- HTTP/1.0
RFC 1973 PPP in Frame Relay
RFC 1974 PPP Stac LZS Compression Protocol
RFC 1981 Path MTU Discovery for IP version 6
RFC 1990 The PPP Multilink Protocol (MP)
RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)
RFC 2082 RIP-2 MD5 Authentication
RFC 2091 Trigger RIP
RFC 2104 HMAC: Keyed-Hashing for Message Authentication
RFC 2131 DHCP
RFC 2132 DHCP Options and BOOTP Vendor Extensions
RFC 2138 Remote Authentication Dial In User Service (RADIUS)
RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification
RFC 2209 Resource ReSerVation Protocol (RSVP) -- Version 1 Message Processing Rules
RFC 2236 IGMP Snooping
RFC 2246 The TLS Protocol Version 1.0
RFC 2251 Lightweight Directory Access Protocol (v3)
RFC 2252 Lightweight Directory Access Protocol (v3):
Attribute Syntax Definitions
RFC 2280 Routing Policy Specification Language (RPSL)
RFC 2283 MBGP
RFC 2284 EAP over LAN
RFC 2338 VRRP
RFC 2364 PPP Over AAL5
RFC 2374 An Aggregatable Global Unicast Address Format
RFC 2451 The ESP CBC-Mode Cipher Algorithms
RFC 2453 RIPv2
RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols
RFC 2511 Internet X.509 Certificate Request Message
Format
RFC 2516 A Method for Transmitting PPP Over
RFC 2274 USM for SNMPv3
RFC 2275 VACM for SNMPv3
RFC 2570 SNMPv3 Overview
RFC 2571 SNMP Management Frameworks
RFC 2572 SNMPv3 Message Processing
RFC 2573 SNMPv3 Applications
RFC 2574 SNMPv3 User-based Security Model (USM)
RFC 2575 SNMPv3 View-based Access Control Model (VACM)
RFC 2575 VACM for SNMP
RFC 2576 Coexistence between SNMP versions
RFC 2578 SMIv2
RFC 2581 TCP6
RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events)
RFC 3164 BSD syslog Protocol
RFC 3411 SNMP Management Frameworks
RFC 3412 SNMPv3 Message Processing
RFC 3414 SNMPv3 User-based Security Model (USM)
RFC 3415 SNMPv3 View-based Access Control Model VACM)
ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)
SNMPv1/v2
SNMPv1/v2c
SNMPv1/v2c (read only)
SNMPv1/v2c/v3

OSPF

RFC 1245 OSPF protocol analysis
RFC 1246 Experience with OSPF
RFC 1253 OSPFv2 MIB
RFC 1583 OSPFv2
RFC 1587 OSPF NSSA
RFC 1745 OSPF Interactions
RFC 1765 OSPF Database Overflow
RFC 1850 OSPFv2 Management Information Base (MIB), traps
RFC 2178 OSPFv2
RFC 2328 OSPFv2
RFC 2370 OSPF Opaque LSA Option
RFC 3101 OSPF NSSA
RFC 3623 Graceful OSPF Restart
RFC 5340 OSPF for IPv6
RFC 5340 OSPFv3 for IPv6

QoS/CoS

IEEE 802.1P (CoS)
RFC 2474 DiffServ Precedence, including 8 queues/port

Ethernet
(PPPoE)
RFC 2529 Transmission of IPv6 over IPv4 Domains without Explicit Tunnels
RFC 2616 HTTP Compatibility v1.1
RFC 2622 Routing Policy Specification Language (RPSL)
RFC 2644 Directed Broadcast Control
RFC 2661 L2TP
RFC 2663 NAT Terminology and Considerations
RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5
RFC 2694 DNS extensions to Network Address Translators (DNS_ALG)
RFC 2702 Requirements for Traffic Engineering Over MPLS
RFC 2716 PPP EAP TLS Authentication Protocol
RFC 2747 RSVP Cryptographic Authentication
RFC 2763 Dynamic Name-to-System ID mapping support
RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT)
RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)
RFC 2767 Dual Stacks IPv4 & IPv6
RFC 2784 Generic Routing Encapsulation (GRE)
RFC 2787 Definitions of Managed Objects for VRRP
RFC 2865 Remote Authentication Dial In User Service (RADIUS)
RFC 2866 RADIUS Accounting
RFC 2868 RADIUS Attributes for Tunnel Protocol Support
RFC 2869 RADIUS Extensions
RFC 2961 RSVP Refresh Overhead Reduction Extensions
RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS
RFC 2973 IS-IS Mesh Groups
RFC 2993 Architectural Implications of NAT
RFC 3022 Traditional IP Network Address Translator (Traditional NAT)
RFC 3027 Protocol Complications with the IP Network
Address Translator
RFC 3031 Multiprotocol Label Switching Architecture
RFC 3032 MPLS Label Stack Encoding
RFC 3036 LDP Specification
RFC 3046 DHCP Relay Agent Information Option
RFC 3063 MPLS Loop Prevention Mechanism
RFC 3065 Support AS confederation
RFC 3137 OSPF Stub Router Advertisement
port
RFC 2474 DS Field in the IPv4 and IPv6 Headers
RFC 2474 DSCP DiffServ
RFC 2474, with 4 queues per port
RFC 2475 DiffServ Architecture
RFC 2597 DiffServ Assured Forwarding (AF)
RFC 2597 DiffServ Assured Forwarding (AF)- partial support
RFC 2598 DiffServ Expedited Forwarding (EF)
Ingress Rate Limiting

Security
802.1X Port Based Network Access Control
RFC 1321 The MD5 Message-Digest Algorithm
RFC 1492 TACACS+
RFC 2082 RIP-2 MD5 Authentication
RFC 2104 Keyed-Hashing for Message Authentication
RFC 2138 RADIUS Authentication
RFC 2139 RADIUS Accounting
RFC 2209 RSVP-Message Processing
RFC 2246 Transport Layer Security (TLS)
RFC 2459 Internet X.509 Public Key Infrastructure Certificate and CRL Profile
RFC 2548 Microsoft Vendor-specific RADIUS Attributes
RFC 2716 PPP EAP TLS Authentication Protocol
RFC 2818 HTTP Over TLS
RFC 2865 RADIUS (client only)
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
RFC 3576 Dynamic Authorization Extensions to RADIUS
RFC 3579 RADIUS Support For Extensible Authentication
Protocol (EAP)
RFC 3580 IEEE 802.1X RADIUS
Access Control Lists (ACLs)
Guest VLAN for 802.1x
MAC Authentication
Port Security

RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels
RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels
RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP)
RFC 3214 LSP Modification Using CR-LDP
RFC 3215 LDP State Machine
RFC 3246 Expedited Forwarding PHB
RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS)
RFC 3277 IS-IS Transient Blackhole Avoidance
RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
RFC 3392 Support BGP capabilities advertisement
RFC 3410 Applicability Statements for SNMP
RFC 3416 Protocol Operations for SNMP
RFC 3417 Transport Mappings for the Simple Network
Management Protocol (SNMP)
RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)
RFC 3487 Graceful Restart Mechanism for LDP
RFC 3509 OSPF ABR Behavior
RFC 3526 More Modular Exponential (MODP) Diffie-Hellman groups for Internet Key Exchange (IKE)
RFC 3564 Requirements for Support of Differentiated
Services-aware MPLS Traffic Engineering
RFC 3567 Intermediate System to Intermediate System
(IS-IS) Cryptographic Authentication
RFC 3602 The AES-CBC Cipher Algorithm and Its Use with
IPsec
RFC 3619 Ethernet Automatic Protection Switching (EAPS)
RFC 3623 Graceful OSPF Restart
RFC 3704 Unicast Reverse Path Forwarding (URPF)
RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers
RFC 3768 Virtual Router Redundancy Protocol (VRRP)
RFC 3784 ISIS TE support
RFC 3786 Extending the Number of IS-IS LSP Fragments

Secure Sockets Layer (SSL)
SSHv1 Secure Shell
SSHv1.5 Secure Shell
SSHv1/SSHv2 Secure Shell
SSHv2 Secure Shell

VPN
RFC 2403 - HMAC-MD5-96
RFC 2404 - HMAC-SHA1-96
RFC 2405 - DES-CBC Cipher algorithm
RFC 2407 - Domain of interpretation
RFC 2547 BGP/MPLS VPNs
RFC 2764 A Framework for IP Based Virtual Private Networks
RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IBGP
RFC 2842 Capabilities Advertisement with BGP-4
RFC 2858 Multiprotocol Extensions for BGP-4
RFC 2917 A Core MPLS IP VPN Architecture
RFC 2918 Route Refresh Capability for BGP-4
RFC 3107 Carrying Label Information in BGP-4
RFC 3948 - UDP Encapsulation of IPsec ESP Packets
RFC 4301 - Security Architecture for the Internet Protocol
RFC 4302 - IP Authentication Header (AH)
RFC 4303 - IP Encapsulating Security Payload (ESP)
RFC 4305 - Cryptographic Algorithm Implementation Requirements for ESP and AH

IPsec
RFC 1828 IP Authentication using Keyed MD5
RFC 2401 IP Security Architecture
RFC 2402 IP Authentication Header
RFC 2406 IP Encapsulating Security Payload
RFC 2407 - Domain of interpretation
RFC 2408 - Internet Security Association and Key Management Protocol (ISAKMP)
RFC 2409 - The Internet Key Exchange
RFC 2410 - The NULL Encryption Algorithm and its use with IPsec
RFC 2411 IP Security Document Roadmap
RFC 2412 – OAKLEY
RFC 2865 - Remote Authentication Dial In User Service (RADIUS)

IKEv1
RFC 2865 - Remote Authentication Dial In User Service
(RADIUS)
RFC 3748 - Extensible Authentication Protocol (EAP)

Beyond the 256 Limit
RFC 3811 Definitions of Textual Conventions (TCs) for
Multiprotocol Label Switching (MPLS) Management
RFC 3812 Multiprotocol Label Switching (MPLS) Traffic
Engineering (TE) Management Information Base (MIB)
RFC 3847 Restart signaling for IS-IS
RFC 4213 Basic IPv6 Transition Mechanisms
IP Ping

Accessories

HP 8800 Router Series accessories	**Transceivers**	
	HP X110 100M SFP LC LH40 Transceiver	JD090A
	HP X110 100M SFP LC LH80 Transceiver	JD091A
	HP X115 100M SFP LC FX Transceiver	JD102B
	HP X110 100M SFP LC LX Transceiver	JD120B
	HP X120 622M SFP LC LX 15km Transceiver	JF829A
	HP X120 622M SFP LC LH 40km 1310 Transceiver	JF830A
	HP X120 622M SFP LC LH 80km 1550 Transceiver	JF831A
	HP X125 1G SFP LC LH40 1310nm Transceiver	JD061A
	HP X120 1G SFP LC LH40 1550nm Transceiver	JD062A
	HP X170 1G SFP LC LH70 1550 Transceiver	JD109A
	HP X170 1G SFP LC LH70 1570 Transceiver	JD110A
	HP X170 1G SFP LC LH70 1590 Transceiver	JD111A
	HP X170 1G SFP LC LH70 1610 Transceiver	JD112A
	HP X170 1G SFP LC LH70 1470 Transceiver	JD113A
	HP X170 1G SFP LC LH70 1490 Transceiver	JD114A
	HP X170 1G SFP LC LH70 1510 Transceiver	JD115A
	HP X170 1G SFP LC LH70 1530 Transceiver	JD116A
	HP X125 1G SFP LC LH70 Transceiver	JD063B
	HP X120 1G SFP LC LH100 Transceiver	JD103A
	HP X120 1G SFP LC BX 10-U Transceiver	JD098B
	HP X120 1G SFP LC BX 10-D Transceiver	JD099B
	HP X120 1G SFP LC SX Transceiver	JD118B
	HP X120 1G SFP LC LX Transceiver	JD119B
	HP X120 1G SFP RJ45 T Transceiver	JD089B
	HP X160 2.5G SFP LC 2km Transceiver	JD084A
	HP X160 2.5G SFP LC 15km Transceiver	JD085A
	HP X160 2.5G SFP LC 40km Transceiver	JD086A
	HP X160 2.5G SFP LC 80km Transceiver	JD087A
	HP X130 10G XFP LC SR Transceiver	JD117B
	HP X135 10G XFP LC ER Transceiver	JD121A
	HP X135 10G XFP LC LR Transceiver	JD088A
	HP X130 10G XFP LC LR Single Mode 10km 1310nm Transceiver	JD108B
	HP X130 10G XFP LC ZR Single Mode 80km 1550nm Transceiver	JD107A
	Cables	
	HP X260 E1 BNC 75 ohm 3m Router Cable	JC127A
	HP X260 E1 RJ45 120 ohm 2m Router Cable	JC156A
	HP X260 E1 RJ45 120 ohm 3m Router Cable	JC126A
	HP X260 E1 RJ45 120 ohm 15m Router Cable	JC151A
	HP X260 E1 RJ45 120 ohm 30m Router Cable	JC152A
	HP X260 E1 BNC Extend 10m Router Cable	JC153A
	HP X260 E1 BNC Extend 15m Router Cable	JC154A
	HP X260 E1 BNC Extend 20m Router Cable	JC155A
	HP X260 E1 RJ45 BNC 75-120 ohm Conversion Router Cable	JD511A

Accessories

HP X260 T1 RJ45 100 ohm 3m Router Cable	JC128A
HP X260 T1 Router Cable	JD518A
HP X260 T1 Voice Router Cable	JD535A
Mounting Kit	
HP X421 Chassis Universal 4-post Rack Mounting Kit	JC665A
License	
HP 8800 Router Software License	JC157A
Router Modules	
HP 8800 Single Service Processing Engine Enhanced Module	JC130A
HP 8800 Dual Service Processing Engine Enhanced Module	JC133A
HP 8800 10-port 1000BASE-X Module	JC131A
HP 8800 20-port 1000BASE-X Module	JC132B
HP 8800 20-port 10/100/1000 Ethernet Electrical Interface Module	JC135B
HP 8800 1-port 10GBASE-R/W Module	JC129A
HP 8800 1-port OC-3/STM-1 CPOS (E1/T1) / 8-port Fiber GbE Module	JC477A
HP 8800 2-port OC-3/STM-1 CPOS E1/T1 / 8-port Fiber GbE Module	JC478A
HP 8800 4-port OC-3/STM-1 CPOS E3/T3 / 4-port Fiber GbE Module	JC479A
HP 8800 1-port OC-12/STM-4 CPOS (E3/T3) / 4-port Fiber GbE Module	JC480A
HP 8800 1-port OC-48/STM-16 CPOS (OC-3/STM-1) Module	JC481A
HP 8800 8-port OC-3c/OC-12c POS/GE Module	JC482A
HP 8800 2-port OC-3c/STM-1c POS / 6-port GbE Module	JC483A
HP 8800 2-port OC-12c/STM-4c POS / 6-port GbE Module	JC484A
HP 8800 2-port OC-48c/STM-16c POS / 4-port GbE Module	JC485A
HP 8800 4-port OC-48c / STM-16c POS SFP Module	JC486A
HP 8800 1-port OC-192c/STM-64c POS Module	JC487A
HP 8800 2-port OC-48c/STM-16c RPR Module	JC488A
HP 8800 1-port OC-192c/STM-64c RPR Module	JC489A
HP 8800 4-port OC-3c/STM-1c ATM Module	JC490A
HP 8800 1-port OC-12c/STM-4c ATM Module	JC491A
HP A8800 Dual Fabric Main Processing Unit	JC596A
HP A8800 Single Processor Service Engine Module	JC598A
HP A8800 Dual Processor Service Engine Module	JC599A
HP A8800 Network Address Translation Service Module	JC607A
HP A8800 48-port GbE SFP Service Processing Module	JC604A
HP A8800 4-port 10-GbE XFP Service Processing Module	JC602A
HP A8800 2-port 10-GbE XFP Service Processing Module	JC605A
HP A8800 16-port GbE SFP / 8-port GbE Combo Service Processing Module	JC606A
HP A-Series 2GB Registered DDR2 SDRAM	JC609A
HP A8800 Single Fabric Main Processing Unit	JC597A
HP 8800 Enhanced Dual Processor Service Engine Module	JC601A
HP 8800 48-port Gig-T Service Processing Module	JC603A
HP 8800 Network Analysis Service Module	JC608A
HP 8800 Enhanced Single Processor Service Engine Module	JC600A
Memory	
HP 8800 1GB SDRAM	JC136A

Accessories

HP X600 1G Compact Flash Card	JC684A
HP X600 512M Compact Flash Card	JC685A
HP X600 256M Compact Flash Card	JC686A
HP A-Series 2GB Registered DDR2 SDRAM	JC609A
HP 8812 Router Chassis (JC150B)	
HP 9500 3500W AC Power Frame	JC111A
HP 9500/8800 1800W AC Power Supply	JC110B
HP 9500/8800 3500W DC Power Supply	JC473A
HP A8800 Single Fabric Main Processing Unit	JC597A
HP A8800 Dual Fabric Main Processing Unit	JC596A
HP 8808-V Router Chassis (JC149B)	
HP 9500 3500W AC Power Frame	JC111A
HP 9500/8800 1800W AC Power Supply	JC110B
HP 9500/8800 3500W DC Power Supply	JC473A
HP A8800 Single Fabric Main Processing Unit	JC597A
HP A8800 Dual Fabric Main Processing Unit	JC596A
HP 8805 Router Chassis (JC148B)	
HP 9500/8800 1800W AC Power Supply	JC110B
HP 9500 3500W AC Power Frame	JC111A
HP 9500/8800 2000W 36-75V DC Power Supply	JC029B
HP A8800 Single Fabric Main Processing Unit	JC597A
HP A8800 Dual Fabric Main Processing Unit	JC596A

Accessory Product Details

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

HP X125 1G SFP LC LH40 1310nm Transceiver (JD061A) A small form-factor pluggable SFP Gigabit LH40 transceiver that provides a full duplex Gigabit solution up to 40km on a single-mode fiber.	**Ports**	1 LC 1000Base-LH port (no IEEE standard exists for 1550 nm optics)	
	Connectivity	Connector type	LC
		Wavelength	1310 nm
	Physical characteristics	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)
	Electrical characteristics	Power consumption typical	0.8 W
		Power consumption maximum	1.0 W
	Cabling	Cable type: Single-mode fiber optic, complying with ITU-T G.652; Maximum distance: • 40km distance	
		Fiber type	Single Mode
	Services	Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	
HP X120 1G SFP LC LH40 1550nm Transceiver (JD062A) 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.	**Ports**	1 LC 1000BASE-LH port (no IEEE standard exists for 1550 nm optics)	
	Connectivity	Connector type	LC
		Wavelength	1550 nm
	Physical characteristics	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)
	Electrical characteristics	Power consumption typical	0.8 W
		Power consumption maximum	1.0 W
	Cabling	Cable type: Single-mode fiber optic, complying with ITU-T G.652; Maximum distance: • 40km distance	
		Fiber type	Single Mode
	Services	Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	

Accessory Product Details

HP X125 1G SFP LC LH70 Transceiver (JD063B) A small form-factor pluggable (SFP) Gigabit LH70 transceiver that provides a full-duplex Gigabit solution up to 70km on a single-mode fiber.	**Ports**	1 LC 1000BASE-LH port (no IEEE standard exists for 1550 nm optics)	
	Connectivity	**Connector type**	LC
		Wavelength	1550 nm
	Physical characteristics	**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)
	Electrical characteristics	**Power consumption typical**	0.8 W
		Power consumption maximum	1.0 W
	Cabling	Cable type: Single-mode fiber optic, complying with ITU-T G.652; Maximum distance: • 70km	
		Fiber type	Single Mode
	Services	Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	
HP X120 1G SFP LC LH100 Transceiver (JD103A) A small form factor pluggable (SFP) Gigabit LH100 transceiver that provides a full-duplex Gigabit solution up to 100km on a single mode fiber.	**Ports**	1 LC 1000BASE-LH port (no IEEE standard exists for 1550 nm optics)	
	Connectivity	**Connector type**	LC
		Wavelength	1550 nm
	Electrical characteristics	**Power consumption typical**	0.8 W
		Power consumption maximum	1.0 W
	Cabling	Cable type: Single-mode fiber optic, complying with ITU-T G.652; Maximum distance: • Up to 100km	
		Fiber type	Single Mode
	Services	Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	

Accessory Product Details

HP X120 1G SFP LC BX 10-U Transceiver (JD098B) 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.	**Ports**	1 LC 1000BASE-BX10 port (IEEE 802.3ah Type 1000BASE-BX10-U); Duplex: full only	
	Connectivity	**Connector type**	LC
	Physical characteristics	**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)
	Electrical characteristics	**Power consumption typical**	0.8 W
		Power consumption maximum	1.0 W
	Cabling	Maximum distance: • 10km	
		Fiber type	Single Mode
	Notes	TX 1310nm RX 1490nm	
	Services	Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	

HP X120 1G SFP LC BX 10-D Transceiver (JD099B) 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 cable.	**Ports**	1 LC 1000BASE-BX10 port (IEEE 802.3ah Type 1000BASE-BX10-D); Duplex: full only	
	Connectivity	**Connector type**	LC
	Physical characteristics	**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)
	Electrical characteristics	**Power consumption typical**	0.8 W
		Power consumption maximum	1.0 W
	Cabling	Maximum distance: • Up to 10km	
		Fiber type	Single Mode
	Notes	TX 1490nm RX 1310nm	
	Services	Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	

Accessory Product Details

HP X120 1G SFP LC SX Transceiver (JD118B) A small form-factor pluggable (SFP) Gigabit SX transceiver that provides a full-duplex Gigabit solution up to 550m on a Multimode fiber.	**Ports**	1 LC 1000BASE-SX port	
	Connectivity	**Connector type**	LC
		Wavelength	850 nm
	Physical characteristics	**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)
	Electrical characteristics	**Power consumption typical**	0.8 W
		Power consumption maximum	1.0 W
	Cabling	Maximum distance: • FDDI Grade distance = 220m • OM1 = 275m • OM2 = 500m • OM3 = Not Specified by standard	
		Cable length	up to 550m
		Fiber type	Multi Mode
	Services	Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	
HP X120 1G SFP LC LX Transceiver (JD119B) A small form-factor pluggable (SFP) Gigabig LX transceiver that provides a full duplex Gigabit solution up to 550m on MMF or 10Km on SMF	**Ports**	1 SFP 1000BASE-LX port (IEEE 802.3z Type 1000BASE-LX)	
	Connectivity	**Connector type**	LC
		Wavelength	1300 nm
	Physical characteristics	**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)
	Electrical characteristics	**Power consumption typical**	0.8 W
		Power consumption maximum	1.0 W
	Cabling	Cable type: Either single mode or multimode; Maximum distance: • 550m for Multimode • 10km for Singlemode	
		Fiber type	Both
	Services	Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	

Accessory Product Details

HP X120 1G SFP RJ45 T Transceiver (JD089B) 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.	**Ports**		1 RJ-45 1000BASE-T port (IEEE 802.3ab Type 1000BASE-T)
	Connectivity	**Connector type**	RJ-45
	Physical characteristics	**Dimensions**	2.71(d) x 0.54(w) x 0.55(h) in. (6.88 x 1.37 x 1.4 cm)
		Full configuration weight	0.07 lb. (0.03 kg)
	Electrical characteristics	**Power consumption typical**	0.8 W
		Power consumption maximum	1.0 W
	Cabling		Cable type: 1000BASE-T: Category 5 (5E or better recommended), 100 Ù differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T; Maximum distance: • 100m
	Services		Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.
HP 8800 Enhanced Dual Processor Service Engine Module (JC601A) Enhanced Dual Processor Service Engine Module for the HP 8800 Router	**Physical characteristics**	**Dimensions**	25.2(w) x 30.1(d) x 12.2(h) in (64.01 x 76.45 x 30.99 cm)
		Full configuration weight	23.1 lb (10.48 kg)
	Services		Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.
HP 9500/8800 1800W AC Power Supply (JC110B)	**Notes**		US order needs to indicate either #ABA option (for 110V) or #B2E (for 220V). This will determine which power cord the distribution centres include with the product.
	Services		Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

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