



HP 6600 Router Series



Key features

- High-performance WAN routing
- Multi-core distributed or centralized processing
- Comprehensive routing, switching, and security
- Embedded hardware encryption
- Robust high availability and resiliency

Product overview

The HP 6600 Router Series is a family of high-performance WAN routers, ideal for campus and data center WAN edge and aggregation deployments.

These routers are built with a multi-core architecture offering distributed or centralized processing to help balance performance and cost. The HP 6600 series delivers robust routing, security, full Layer 2 switching, and modular high-density WAN and LAN interface options, all integrated in a single high-performance routing platform.

In addition, the HP 6600 Router Series features robust carrier-class reliability capabilities to help minimize disruption from network or system failures.

Features and benefits

Quality of Service (QoS)

- **Traffic policing**
supports Committed Access Rate (CAR) and line rate
- **Congestion management**
supports FIFO, PQ, CQ, WFQ, CBQ, and RTPQ
- **Other QoS technologies**
support traffic shaping, FR QoS, MPLS QoS, and MP QoS/LFI
- **Congestion avoidance**
weighted random early detection (WRED)/random early detection (RED)

Management

- **Management interface control**
provides management access through modem port and terminal interface, as well as in-band and out-of-band Ethernet ports
- **Management security**
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
- **Industry-standard CLI with a hierarchical structure**
reduces training needs and increases productivity in multivendor installations
- **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**
File Transfer Protocol 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 the system from incorrect cabling or network configurations and can be enabled on a port or VLAN
- **Internet Group Management Protocol (IGMP)**
is used by IP hosts to establish and maintain multicast groups; supports v1, v2, and v3; utilizes Any-Source Multicast (ASM) or Source-Specific Multicast (SSM) to manage IPv4 multicast networks

Connectivity

- **NEW High port density**
provides up to 16 interface module slots, and high-density Ethernet interface cards; a single card can provide up to 48 GbE interfaces; therefore, the routers can fully satisfy the demands of high-density Ethernet (MSTP) link distribution
- **Multiple WAN interfaces**
support Fast Ethernet/Gigabit Ethernet/10GbE ports, OC3~OC48 POS/CPoS, and ATM ports
- **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 is adaptable between 155 M POS and 622 M POS

Performance

- **NEW Industry-leading performance**
provides up to 252 Mpps forwarding performance
- **Flexible chassis selection**
consists of 4 models: 16 HIM-slot chassis, 8 HIM-slot chassis, 4 HIM-slot chassis, and 2 HIM-slot chassis
- **Scalable system design**
backplane is designed for smooth bandwidth upgrade

Resiliency and high availability

- **Separate data and control planes**
provide greater flexibility and enable continual services
- **Hitless software upgrades**
allow patches to be installed without restarting the device, increasing network uptime and simplifying maintenance
- **Redundant design of main processing unit and power supply**
increases the overall system availability

- **Virtual Router Redundancy Protocol (VRRP)**
enables fast convergence of routes and packet forwarding when links fail, ensuring high network availability
- **IP Fast Reroute Framework (FRR)**
nodes are configured with backup ports and routes; local implementation requires no cooperation of adjacent devices, simplifying the 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
- **Graceful restart**
features are fully supported, including graceful restart for OSPF, IS-IS, Border Gateway Protocol (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 nonstop forwarding (NSF)
- **Hot-swappable modules**
facilitate the replacement of hardware interface modules without impacting the traffic flow through the system

Layer 3 services

- **Address Resolution Protocol (ARP)**
determines the MAC address of another IP host in the same subnet; supports static ARPs; gratuitous ARP allows detection of duplicate IP addresses; proxy ARP allows normal ARP operation between subnets or when subnets are separated by a Layer 2 network
- **User Datagram Protocol (UDP) helper**
redirects UDP broadcasts to specific IP subnets to prevent server spoofing
- **Dynamic Host Configuration Protocol (DHCP)**
simplifies the management of large IP networks and supports client and server; DHCP Relay enables DHCP operation across subnets
- **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
- **Open Shortest Path First (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
- **IPv6 tunneling**
is an important element for the transition from IPv4 to IPv6; allows IPv6 packets to traverse IPv4-only networks by encapsulating the IPv6 packet into a standard IPv4 packet; supports manually configured, 6to4, and Intra-Site Automatic Tunnel Addressing Protocol (ISATAP) tunnels
- **Multiprotocol Label Switching (MPLS)**
uses BGP to advertise routes across Label Switched Paths (LSPs), but uses simple labels to forward packets from any Layer 2 or Layer 3 protocol, thus reducing complexity and increasing performance; supports graceful restart for reduced failure impact; supports LSP tunneling and multilevel stacks
- **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
- **Policy routing**
allows custom filters for increased performance and security; supports ACLs, IP prefix, AS paths, community lists, and aggregate policies
- **Multicast VPN**
supports Multicast Domain (MD) multicast VPN, which can be distributed on separate service cards, providing high performance and flexible configuration

- **Border Gateway Protocol 4**

Exterior Gateway Protocol (EGP) with path vector protocol uses TCP for enhanced reliability for the route discovery process, reduces bandwidth consumption by advertising only incremental updates, and supports extensive policies to increase flexibility and scale to large networks

- **OSPFv3 MCE**

Multi-VPN-Instance CE (MCE) binds different VPNs to different interfaces on one single CE; the OSPFv3 MCE feature creates and maintains separate OSPFv3 routing tables for each IPv6 VPN to isolate VPN services in the device

Security

- **Access control list**

supports powerful ACLs for both IPv4 and IPv6; ACLs are used for filtering traffic to prevent illegal users from accessing the network or for controlling network traffic flow; 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 also be set to operate on specific dates or times

- **Remote Authentication Dial-In User Service (RADIUS)**

eases switch security access administration by using a password authentication server

- **Terminal Access Controller Access-Control System (TACACS+)**

is an authentication tool using TCP with encryption of the full authentication request that provides additional security

- **Network address translation (NAT)**

supports repeated multiplexing of a port and automatic 5-tuple collision detection, enabling NAT 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

- **DVPN (Dynamic Virtual Private Network)**

collects, maintains, and distributes dynamic public addresses through the VPN Address Management (VAM) protocol, making VPN establishment available between enterprise branches that use dynamic addresses to access the public network; compared to traditional VPN technologies, DVPN technology is more flexible and has richer features, such as NAT traversal of DVPN packets, AAA identity authentication, IPSec protection of data packets, and multiple VPN domains

Multicast support

- **Internet Group Management Protocol (IGMP)**

is used by IP hosts to establish and maintain 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)**

is used for interdomain 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

Integration

- **Embedded VPN firewall**

provides enhanced stateful packet inspection and filtering; provides advanced VPN services with 3DES and AES encryption at high performance and low latency

- **Open Application Architecture (OOA)**

provides both software and hardware platforms based on open standards so that third-party applications can be integrated seamlessly into routers

Additional information

- **Green initiative support**

provides support for RoHS and WEEE regulations

Product architecture

- **Multi-core CPU**

the first service convergence router based on multi-core, multi-thread processing, with eight cores and 32 hardware threads

- **Distributed processing**

the main processing engine and service engine have separate hardware for high performance and parallel processing; the main processing engine is used for route calculation and system management, while the service engine is used for service processing

- **Separate FIP card and interface card**

interface cards are separated from the FIP card to support flexible service configurations

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**

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Specifications



HP 6602 Router (JC176A)



HP 6604 Router Chassis (JC178B)

Ports	2 HIM slots	4 HIM slots 2 SAP slots 2 MPU (for management modules) slots
Physical characteristics		
Weight	17.40(w) x 18.11(d) x 1.73(h) in (44.2 x 46 x 4.4 cm) (1U height)	17.17(w) x 18.9(d) x 8.66(h) in (43.61 x 48.01 x 22 cm) (5U height)
Full configuration weight	16.53 lb (7.5 kg)	83.77 lb (38 kg) 83.77 lb (38 kg)
Memory and processor	Multi-core MIPS @ 1000 MHz, 2 GB DDR2 SDRAM, 4 GB DDR2 SDRAM, 256 MB flash, 1 GB flash; packet buffer size: 128 MB DDR2 SDRAM	
Mounting	EIA standard 19 in. rack	EIA standard 19 in. rack
Performance		
Throughput	up to 4.5 million pps	up to 36 million pps
Routing table size	1000000 entries (IPv4), 300000 entries (IPv6)	2000000 entries (IPv4), 500000 entries (IPv6)
Forwarding table size	1000000 entries (IPv4), 100000 entries (IPv6)	1000000 entries (IPv4), 300000 entries (IPv6)
Backplane bandwidth	48 Gbps	100 Gbps
Environment		
Operating temperature	32°F to 113°F (0°C to 45°C)	32°F to 113°F (0°C to 45°C)
Operating relative humidity	10% to 95%, noncondensing	10% to 95%, noncondensing
Nonoperating/Storage temperature	14°F to 131°F (-10°C to 55°C)	14°F to 131°F (-10°C to 55°C)
Nonoperating/Storage relative humidity	5% to 95%, noncondensing	5% to 95%, noncondensing
Electrical characteristics		
Frequency	50/60 +/- 2 Hz	50/60 +/- 2 Hz
Maximum heat dissipation	512 BTU/hr (540.16 kJ/hr)	2217 BTU/hr (2338.94 kJ/hr)
Voltage	100-240 VAC	100-240 VAC
DC voltage		-48 to -60 VDC
Maximum power rating	150 W	650 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.	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.
Reliability		
MTBF (years)	26.24	31.19
MTTR (hours)	1.0	1.0
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; EN 60825; AS/NZS 60950; KN 60950; GOST R MEK60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; EN 609500 Safety Information Technology Equipment; UL 60950; CSA 22.2 No. 60950/cUL; IEC 60950; IEC 60950-1; EN 60950; EN 60950-1; IEC 60825; CSA 22.2 No. 950-95; IEC 60950-1:2001 (with CB Report); CAN/CSA-C22.2 No. 60950-1-03; CAN/CSA-C22.2 No. 60950-1; CSA 60950-1; CSA C22.2 60950-1; EU RoHS Compliant; 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; EN 60825: Safety of Laser Products	
Emissions	FCC part 15 Class A; FCC Rules Part 15, Subpart B Class A; EN 55022/CISPR-22 Class A; VCCI Class A; EN 55022/CISPR 22 Class A; EN 55022 Class A; CISPR 22 Class A; EN 55024; CISPR 22/A2; 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; BSMI CNS 13438; EMC Directive 89/336/EEC; ICES-003 Class A; ANSI C63.4 2003; CISPR 24; ETSI EN 300 386 V1.3.3; AS/NZS CISPR 22 Class A; EN 61000-3-2; EN 61000-3-3; Korean EMI Class A; 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	

HP 6600 Router Series

Specifications (continued)

	HP 6602 Router (JC176A)	HP 6604 Router Chassis (JC178B)
Management	IMC - Intelligent Management Center; command-line interface; limited command-line interface; out-of-band management (serial RS-232C); out-of-band management (DB-9 serial port console); 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	IMC - Intelligent Management Center; command-line interface; limited command-line interface; out-of-band management (serial RS-232C); out-of-band management (DB-9 serial port console); 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
Notes	Routers shipping into Russia will only support low encryption (56bit) security features by default	Chassis supports a max of 4 HIM or 2 SAP slots, or some combination thereof; 2 HIM or 1 SAP slots with redundant JC566A. Forwarding table size shown is with use of JC566A. JC165A delivers forwarding of 500,000 IPv4 and 100,000 IPv6 addresses.
Services	3-year, parts only, global next-day advance exchange (HP826E) 3-year, 4-hour onsite, 13x5 coverage for hardware (HP830E) 3-year, 4-hour onsite, 24x7 coverage for hardware (HP817E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (HP820E) 3-year, 24x7 SW phone support, software updates (HP823E) 1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR524E) 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware (HR525E) 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (HR526E) 4-year, 4-hour onsite, 13x5 coverage for hardware (HP831E) 4-year, 4-hour onsite, 24x7 coverage for hardware (HP818E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (HP821E) 4-year, 24x7 SW phone support, software updates (HP824E) 5-year, 4-hour onsite, 13x5 coverage for hardware (HP832E) 5-year, 4-hour onsite, 24x7 coverage for hardware (HP819E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (HP822E) 5-year, 24x7 SW phone support, software updates (HP825E) 3 Yr 6 hr Call-to-Repair Onsite (HP827E) 4 Yr 6 hr Call-to-Repair Onsite (HP828E) 5 Yr 6 hr Call-to-Repair Onsite (HP829E) 1-year, 6 hour Call-To-Repair Onsite for hardware (HR528E) 1-year, 24x7 software phone support, software updates (HR527E) 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.	3-year, parts only, global next-day advance exchange (UW054E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UW062E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UV930E) 3-year, 4-hour onsite, 24x7 coverage for hardware (HR530E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UV943E) 3-year, 24x7 SW phone support, software updates (UV955E) 1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR529E) 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (HR531E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UW063E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UV931E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UV944E) 4-year, 24x7 SW phone support, software updates (UV956E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UW064E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UV932E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UV945E) 5-year, 24x7 SW phone support, software updates (UV957E) 3 Yr 6 hr Call-to-Repair Onsite (UW055E) 4 Yr 6 hr Call-to-Repair Onsite (UW056E) 5 Yr 6 hr Call-to-Repair Onsite (UW057E) 1-year, 6 hour Call-To-Repair Onsite for hardware (HR533E) 1-year, 24x7 software phone support, software updates (HR532E) 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 6600 Router Series

Specifications (continued)

	HP 6602 Router (JC176A)	HP 6604 Router Chassis (JC178B)	
Standards and protocols (applies to all products in series)	BGP RFC 1267 Border Gateway Protocol 3 (BGP-3) RFC 1657 Definitions of Managed Objects for BGPv4 RFC 1771 BGPv4 RFC 1772 Application of the BGP RFC 1773 Experience with the BGP-4 Protocol RFC 1774 BGP-4 Protocol Analysis RFC 1965 BGP4 confederations RFC 1997 BGP Communities Attribute RFC 1998 PPP Gandalf FZA Compression Protocol RFC 2385 BGP Session Protection via TCP MD5 RFC 2439 BGP Route Flap Damping RFC 2796 BGP Route Reflection RFC 2842 Capability Advertisement with BGP-4 RFC 2858 BGP-4 Multi-Protocol Extensions 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) 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 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 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 1700 Assigned Numbers RFC 1701 Generic Routing Encapsulation RFC 1702 Generic Routing Encapsulation over IPv4 networks 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 2338 VRRP (Premium Edge License) 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 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)

HP 6600 Router Series

Specifications (continued)

	HP 6602 Router (JC176A)	HP 6604 Router Chassis (JC178B)	
Standards and protocols (applies to all products in series)	RFC 2702 Requirements for Traffic Engineering Over MPLS	RFC 3784 ISIS TE support	RFC 3596 DNS Extension for IPv6
	RFC 2716 PPP EAP TLS Authentication Protocol	RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit	RFC 3810 MLDv2 (host joins only)
	RFC 2747 RSVP Cryptographic Authentication	RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management	RFC 3810 MLDv2 for IPv6
	RFC 2763 Dynamic Name-to-System ID mapping support	RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB)	RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6
	RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT)	RFC 3847 Restart signaling for IS-IS	RFC 4022 MIB for TCP
	RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)	RFC 4213 Basic IPv6 Transition Mechanisms	RFC 4113 MIB for UDP
	RFC 2767 Dual Stacks IPv4 & IPv6	IP Ping	RFC 4251 SSHv6 Architecture
	RFC 2784 Generic Routing Encapsulation (GRE)	IP multicast	RFC 4252 SSHv6 Authentication
	RFC 2787 Definitions of Managed Objects for VRRP	RFC 1112 IGMP	RFC 4252 SSHv6 Transport Layer
	RFC 2865 Remote Authentication Dial In User Service (RADIUS)	RFC 2236 IGMPv2	RFC 4253 SSHv6 Transport Layer
	RFC 2866 RADIUS Accounting	RFC 2283 Multiprotocol Extensions for BGP-4	RFC 4254 SSHv6 Connection
	RFC 2868 RADIUS Attributes for Tunnel Protocol Support	RFC 2362 PIM Sparse Mode	RFC 4291 IP Version 6 Addressing Architecture
	RFC 2869 RADIUS Extensions	RFC 2362 PIM Sparse Mode (Premium Edge License)	RFC 4293 MIB for IP
	RFC 2961 RSVP Refresh Overhead Reduction Extensions	RFC 2934 Protocol Independent Multicast MIB for IPv4	RFC 4419 Key Exchange for SSH
	RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS	RFC 3376 IGMPv3	RFC 4443 ICMPv6
	RFC 2973 IS-IS Mesh Groups	RFC 3376 IGMPv3 (host joins only)	RFC 4541 IGMP & MLD Snooping Switch
	RFC 2993 Architectural Implications of NAT	RFC 3569 An Overview of Source-Specific Multicast (SSM)	RFC 4861 IPv6 Neighbor Discovery
	RFC 3022 Traditional IP Network Address Translator (Traditional NAT)	RFC 3618 Multicast Source Discovery Protocol (MSDP)	RFC 4862 IPv6 Stateless Address Auto-configuration
	RFC 3027 Protocol Complications with the IP Network Address Translator	RFC 3973 Draft 2 PIM Dense Mode	RFC 5095 Deprecation of Type 0 Routing Headers in IPv6
	RFC 3031 Multiprotocol Label Switching Architecture	RFC 3973 Draft 2 PIM Dense Mode	RFC 5340 OSPF for IPv6
	RFC 3032 MPLS Label Stack Encoding	RFC 3973 PIM Dense Mode	RFC 5722 Handling of Overlapping IPv6 Fragments
	RFC 3036 LDP Specification	RFC 3973 PIM Dense Mode (Premium Edge License)	MIBs
	RFC 3046 DHCP Relay Agent Information Option	RFC 4601 Draft 10 PIM Sparse Mode	IEEE 8021-PAE-MIB
	RFC 3063 MPLS Loop Prevention Mechanism	RFC 4601 Draft 10 PIM Sparse Mode	IEEE 8023-LAG-MIB
	RFC 3065 Support AS confederation	RFC 4605 IGMP/MLD Proxying	RFC 1156 (TCP/IP MIB)
	RFC 3137 OSPF Stub Router Advertisement	IPv6	RFC 1212 Concise MIB Definitions
	RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels	RFC 1350 TFTT	RFC 1213 MIB II
	RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels	RFC 1881 IPv6 Address Allocation Management	RFC 1229 Interface MIB Extensions
	RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP)	RFC 1886 DNS Extension for IPv6	RFC 1286 Bridge MIB
	RFC 3214 LSP Modification Using CR-LDP	RFC 1887 IPv6 Unicast Address Allocation Architecture	RFC 1493 Bridge MIB
	RFC 3215 LDP State Machine	RFC 1981 IPv6 Path MTU Discovery	RFC 1573 SNMP MIB II
	RFC 3246 Expedited Forwarding PHB	RFC 2080 RIPng for IPv6	RFC 1643 Ethernet MIB
	RFC 3268 Advanced Encryption Standard (AES)	RFC 2292 Advanced Sockets API for IPv6	RFC 1650 Ethernet-Like MIB
	Ciphersuites for Transport Layer Security (TLS)	RFC 2373 IPv6 Addressing Architecture	RFC 1657 BGP-4 MIB
	RFC 3277 IS-IS Transient Blackhole Avoidance	RFC 2375 IPv6 Multicast Address Assignments	RFC 1724 RIPv2 MIB
	RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile	RFC 2460 IPv6 Specification	RFC 1757 Remote Network Monitoring MIB
	RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile	RFC 2461 IPv6 Neighbor Discovery	RFC 1850 OSPFv2 MIB
	RFC 3392 Support BGP capabilities advertisement	RFC 2462 IPv6 Stateless Address Auto-configuration	RFC 1907 SNMPv2 MIB
	RFC 3410 Applicability Statements for SNMP	RFC 2463 ICMPv6	RFC 2011 SNMPv2 MIB for IP
	RFC 3416 Protocol Operations for SNMP	RFC 2464 Transmission of IPv6 over Ethernet Networks	RFC 2012 SNMPv2 MIB for TCP
	RFC 3417 Transport Mappings for the Simple Network Management Protocol (SNMP)	RFC 2472 IP Version 6 over PPP	RFC 2013 SNMPv2 MIB for UDP
	RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)	RFC 2473 Generic Packet Tunneling in IPv6	RFC 2021 RMONv2 MIB
	RFC 3487 Graceful Restart Mechanism for LDP	RFC 2475 IPv6 DiffServ Architecture	RFC 2096 IP Forwarding Table MIB
	RFC 3509 OSPF ABR Behavior	RFC 2529 Transmission of IPv6 Packets over IPv4	RFC 2233 Interface MIB
	RFC 3526 More Modular Exponential (MODP)	RFC 2545 Use of MP-BGP-4 for IPv6	RFC 2233 Interfaces MIB
	Diffie-Hellman groups for Internet Key Exchange (IKE)	RFC 2553 Basic Socket Interface Extensions for IPv6	RFC 2273 SNMP-NOTIFICATION-MIB
	RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering	RFC 2710 Multicast Listener Discovery (MLD) for IPv6	RFC 2452 IPV6-TCP-MIB
	RFC 3567 Intermediate System to Intermediate System (IS-IS) Cryptographic Authentication	RFC 2711 IPv6 Router Alert Option	RFC 2454 IPV6-UDP-MIB
	RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec	RFC 2740 OSPFv3 for IPv6	RFC 2465 IPV6 MIB
	RFC 3619 Ethernet Automatic Protection Switching (EAPS)	RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers	RFC 2466 ICMPv6 MIB
	RFC 3623 Graceful OSPF Restart	RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (Ping only)	RFC 2571 SNMP Framework MIB
	RFC 3704 Unicast Reverse Path Forwarding (URPF)	RFC 2925 Remote Operations MIB (Ping only)	RFC 2572 SNMP-MPD MIB
	RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers	RFC 3056 Connection of IPv6 Domains via IPv4 Clouds	RFC 2573 SNMP-Notification MIB
	RFC 3768 VRRP	RFC 3162 RADIUS and IPv6	RFC 2573 SNMP-Target MIB
	RFC 3768 VRRP	RFC 3306 Unicast-Prefix-based IPv6 Multicast Addresses	RFC 2574 SNMP USM MIB
	RFC 3768 VRRP (Premium Edge License)	RFC 3307 IPv6 Multicast Address Allocation	RFC 2618 RADIUS Client MIB
		RFC 3315 DHCPv6 (client and relay)	RFC 2620 RADIUS Accounting MIB
		RFC 3315 DHCPv6 (client only)	RFC 2665 Ethernet-Like-MIB
		RFC 3363 DNS support	RFC 2668 802.3 MAU MIB
		RFC 3484 Default Address Selection for IPv6	RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
		RFC 3493 Basic Socket Interface Extensions for IPv6	RFC 2688 MAU-MIB
		RFC 3513 IPv6 Addressing Architecture	RFC 2737 Entity MIB (Version 2)
		RFC 3542 Advanced Sockets API for IPv6	RFC 2787 VRRP MIB
		RFC 3587 IPv6 Global Unicast Address Format	RFC 2819 RMON MIB

HP 6600 Router Series

Specifications (continued)

HP 6602 Router (JC176A)	HP 6604 Router Chassis (JC178B)
Standards and protocols (applies to all products in series) 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 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 3176 sFlow RFC 3411 SNMP Management Frameworks RFC 3412 SNMPv3 Message Processing RFC 3414 SNMPv3 User-based Security Model (USM) RFC 3415 SNMPv3 View-based Access Control Model (VACM) ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED) 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 2328 OSPFv2 RFC 2328 OSPFv2 (Premium Edge License) 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 RFC 2474 DiffServ precedence, with 4 queues per 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 IEEE 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 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 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) IPsec RFC 2865 - Remote Authentication Dial In User Service (RADIUS) RFC 3748 - Extensible Authentication Protocol (EAP)

HP 6600 Router Series

Specifications (continued)



HP 6608 Router Chassis (JC177B)



HP 6616 Router Chassis (JC496A)

Ports	8 HIM slots 4 SAP slots 2 MPU (for management modules) slots	16 HIM slots 8 SAP slots 2 MPU (for management modules) slots
Physical characteristics		
Weight	17.17(w) x 18.74(d) x 12.13(h) in (43.61 x 47.6 x 30.81 cm) (7U height) 110.23 lb (50 kg)	17.17(w) x 18.74(d) x 34.88(h) in (43.61 x 47.6 x 88.6 cm) (20U height) 220.46 lb (100 kg)
Full configuration weight	110.23 lb (50 kg)	
Mounting	EIA standard 19 in. rack	EIA standard 19 in. rack
Performance		
Throughput	up to 108 million pps	up to 252 million pps
Routing table size	2000000 entries (IPv4), 500000 entries (IPv6)	2000000 entries (IPv4), 500000 entries (IPv6)
Forwarding table size	1000000 entries (IPv4), 300000 entries (IPv6)	1000000 entries (IPv4), 300000 entries (IPv6)
Backplane bandwidth	100 Gbps	100 Gbps
Environment		
Operating temperature	32°F to 113°F (0°C to 45°C)	32°F to 113°F (0°C to 45°C)
Operating relative humidity	10% to 95%, noncondensing	10% to 95%, noncondensing
Nonoperating/Storage temperature	14°F to 131°F (-10°C to 55°C)	14°F to 131°F (-10°C to 55°C)
Nonoperating/Storage relative humidity	5% to 95%, noncondensing	5% to 95%, noncondensing
Electrical characteristics		
Frequency	50/60 +/- 2 Hz	50/60 +/- 2 Hz
Maximum heat dissipation	2217 BTU/hr (2338.94 kJ/hr)	6650 BTU/hr (7015.75 kJ/hr)
Voltage	100-240 VAC	100-240 VAC
DC voltage	-48 to -60 VDC	-48 to -60 VDC
Maximum power rating	650 W	1950 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.	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.
Reliability		
MTBF (years)	26.80	24.50
MTTR (hours)	1.0	1.0
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; EN 60825; AS/NZS 60950; KN 60950; GOST R MEK60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; EN 609500 Safety Information Technology Equipment; UL 60950; CSA 22.2 No. 60950/cUL; IEC 60950; IEC 60950-1; EN 60950; EN 60950-1; IEC 60825; CSA 22.2 No. 950-95; IEC 60950-1:2001 (with CB Report); CAN/CSA-C22.2 No. 60950-1-03; CAN/CSA-C22.2 No. 60950-1; CSA 60950-1; CSA C22.2 60950-1; EU RoHS Compliant; 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; EN 60825: Safety of Laser Products	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; EN 60825; AS/NZS 60950; KN 60950; GOST R MEK60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; EN 609500 Safety Information Technology Equipment; UL 60950; CSA 22.2 No. 60950/cUL; IEC 60950; IEC 60950-1; EN 60950; EN 60950-1; IEC 60825; CSA 22.2 No. 950-95; IEC 60950-1:2001 (with CB Report); CAN/CSA-C22.2 No. 60950-1-03; CAN/CSA-C22.2 No. 60950-1; CSA 60950-1; CSA C22.2 60950-1; EU RoHS Compliant; 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; EN 60825: Safety of Laser Products
Emissions	FCC part 15 Class A; FCC Rules Part 15, Subpart B Class A; EN 55022/CISPR-22 Class A; VCCI Class A; EN 55022/CISPR 22 Class A; EN 55022 Class A; CISPR 22 Class A; EN 55024; CISPR 22/A2; 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; BSMI CNS 13438; EMC Directive 89/336/EEC; ICES-003 Class A; ANSI C63.4 2003; CISPR 24; ETSI EN 300 386 V1.3.3; AS/NZS CISPR 22 Class A; EN 61000-3-2; EN 61000-3-3; Korean EMI Class A; 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	FCC part 15 Class A; FCC Rules Part 15, Subpart B Class A; EN 55022/CISPR-22 Class A; VCCI Class A; EN 55022/CISPR 22 Class A; EN 55022 Class A; CISPR 22 Class A; EN 55024; CISPR 22/A2; 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; BSMI CNS 13438; EMC Directive 89/336/EEC; ICES-003 Class A; ANSI C63.4 2003; CISPR 24; ETSI EN 300 386 V1.3.3; AS/NZS CISPR 22 Class A; EN 61000-3-2; EN 61000-3-3; Korean EMI Class A; 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

HP 6600 Router Series

Specifications (continued)

	HP 6608 Router Chassis (JC177B)	HP 6616 Router Chassis (JC496A)
Management	IMC - Intelligent Management Center; command-line interface; limited command-line interface; out-of-band management (serial RS-232C); out-of-band management (DB-9 serial port console); 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	IMC - Intelligent Management Center; command-line interface; limited command-line interface; out-of-band management (serial RS-232C); out-of-band management (DB-9 serial port console); 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
Notes	Chassis supports a max of 8 HIM or 4 SAP slots, or some combination thereof; 6 HIM or 3 SAP slots, or some combination thereof, with redundant JC566A. Forwarding table size shown is with use of JC566A. JC165A delivers forwarding of 500,000 IPv4 and 100,000 IPv6 addresses.	Chassis supports a max of 16 HIM or 8 SAP slots, or some combination thereof; 14 HIM or 7 SAP slots, or some combination thereof, with redundant JC566A. Forwarding table size shown is with use of JC566A. JC165A delivers forwarding of 500,000 IPv4 and 100,000 IPv6 addresses.
Services	3-year, parts only, global next-day advance exchange (UW054E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UW062E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UV930E) 3-year, 4-hour onsite, 24x7 coverage for hardware (HR530E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UV943E) 3-year, 24x7 SW phone support, software updates (UV955E) 1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR529E) 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (HR531E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UW063E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UV931E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UV944E) 4-year, 24x7 SW phone support, software updates (UV956E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UW064E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UV932E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UV945E) 5-year, 24x7 SW phone support, software updates (UV957E) 3 Yr 6 hr Call-to-Repair Onsite (UW055E) 4 Yr 6 hr Call-to-Repair Onsite (UW056E) 5 Yr 6 hr Call-to-Repair Onsite (UW057E) 1-year, 6 hour Call-To-Repair Onsite for hardware (HR533E) 1-year, 24x7 software phone support, software updates (HR532E) 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.	3-year, parts only, global next-day advance exchange (UW054E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UW062E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UV930E) 3-year, 4-hour onsite, 24x7 coverage for hardware (HR530E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UV943E) 3-year, 24x7 SW phone support, software updates (UV955E) 1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR529E) 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (HR531E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UW063E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UV931E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UV944E) 4-year, 24x7 SW phone support, software updates (UV956E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UW064E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UV932E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UV945E) 5-year, 24x7 SW phone support, software updates (UV957E) 3 Yr 6 hr Call-to-Repair Onsite (UW055E) 4 Yr 6 hr Call-to-Repair Onsite (UW056E) 5 Yr 6 hr Call-to-Repair Onsite (UW057E) 1-year, 6 hour Call-To-Repair Onsite for hardware (HR533E) 1-year, 24x7 software phone support, software updates (HR532E) 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 6600 Router Series

Specifications (continued)

	HP 6608 Router Chassis (JC177B)	HP 6616 Router Chassis (JC496A)
Standards and protocols (applies to all products in series)	BGP RFC 1267 Border Gateway Protocol 3 (BGP-3) RFC 1657 Definitions of Managed Objects for BGPv4 RFC 1771 BGPv4 RFC 1772 Application of the BGP RFC 1773 Experience with the BGP-4 Protocol RFC 1774 BGP-4 Protocol Analysis RFC 1965 BGP4 confederations RFC 1997 BGP Communities Attribute RFC 1998 PPP Gandalf FZA Compression Protocol RFC 2385 BGP Session Protection via TCP MD5 RFC 2439 BGP Route Flap Damping RFC 2796 BGP Route Reflection RFC 2842 Capability Advertisement with BGP-4 RFC 2858 BGP-4 Multi-Protocol Extensions 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) 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 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 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 1700 Assigned Numbers RFC 1701 Generic Routing Encapsulation RFC 1702 Generic Routing Encapsulation over IPv4 networks 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 2338 VRRP (Premium Edge License) 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 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)

HP 6600 Router Series

Specifications (continued)

	HP 6608 Router Chassis (JC177B)	HP 6616 Router Chassis (JC496A)
Standards and protocols (applies to all products in series)	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 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 VRRP RFC 3768 VRRP RFC 3768 VRRP (Premium Edge License)	RFC 3784 ISIS TE support RFC 3786 Extending the Number of IS-IS LSP Fragments 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 IP multicast RFC 1112 IGMP RFC 2236 IGMPv2 RFC 2283 Multiprotocol Extensions for BGP-4 RFC 2362 PIM Sparse Mode RFC 2362 PIM Sparse Mode (Premium Edge License) RFC 2934 Protocol Independent Multicast MIB for IPv4 RFC 3376 IGMPv3 RFC 3376 IGMPv3 (host joins only) RFC 3569 An Overview of Source-Specific Multicast (SSM) RFC 3618 Multicast Source Discovery Protocol (MSDP) RFC 3973 Draft 2 PIM Dense Mode RFC 3973 Draft 2 PIM Dense Mode RFC 3973 PIM Dense Mode RFC 3973 PIM Dense Mode RFC 3973 PIM Dense Mode (Premium Edge License) RFC 4601 Draft 10 PIM Sparse Mode RFC 4601 Draft 10 PIM Sparse Mode RFC 4605 IGMP/MLD Proxying IPv6 RFC 1350 TFTPT 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 3363 DNS support 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 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 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

HP 6600 Router Series

Specifications (continued)

	HP 6608 Router Chassis (JC177B)	HP 6616 Router Chassis (JC496A)
Standards and protocols (applies to all products in series)	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 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 3176 sFlow RFC 3411 SNMP Management Frameworks RFC 3412 SNMPv3 Message Processing RFC 3414 SNMPv3 User-based Security Model (USM) RFC 3415 SNMPv3 View-based Access Control Model (VACM) ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED) 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 2328 OSPFv2 RFC 2328 OSPFv2 RFC 2328 OSPFv2 (Premium Edge License) 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 RFC 2474 DiffServ precedence, with 4 queues per 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 IEEE 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 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 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) IPsec RFC 2865 - Remote Authentication Dial In User Service (RADIUS) RFC 3748 - Extensible Authentication Protocol (EAP)

HP 6600 Router Series accessories

Transceivers

HP X110 100M SFP LC LH40 Transceiver (JD090A)
HP X110 100M SFP LC LH80 Transceiver (JD091A)
HP X110 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 X120 1G SFP LC BX 10-U Transceiver (JD098B)
HP X120 1G SFP LC BX 10-D Transceiver (JD099B)
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 X125 1G SFP LC LH70 Transceiver (JD063B)
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 X135 10G XFP LC ER Transceiver (JD121A)
HP X130 10G XFP LC LR Transceiver (JD108B)
HP X130 10G XFP LC SR Transceiver (JD117B)

Cables

HP X200 V.24 DTE 3m Serial Port Cable (JD519A)
HP X200 V.24 DCE 3m Serial Port Cable (JD521A)
HP X200 V.35 DTE 3m Serial Port Cable (JD523A)
HP X200 V.35 DCE 3m Serial Port Cable (JD525A)
HP X200 X.21 DTE 3m Serial Port Cable (JD527A)
HP X200 X.21 DCE 3m Serial Port Cable (JD529A)
HP X260 RS449 3m DTE Serial Port Cable (JF825A)
HP X260 RS449 3m DCE Serial Port Cable (JF826A)
HP X260 RS530 3m DTE Serial Port Cable (JF827A)
HP X260 RS530 3m DCE Serial Port Cable (JF828A)
HP X260 8E1 BNC 75 ohm 3m Router Cable (JD512A)
HP X260 E1 RJ45 BNC 75-120 ohm Conversion Router Cable (JD511A)

Router Modules

HP 6600 1-port OC-3/STM-1 (E1/T1) CPOS SFP HIM Module (JC161A)
HP 6600 2-port OC-3/STM-1 (E1/T1) CPOS SFP HIM Module (JC162A)
HP 6600 2-port OC-3/STM-1 (E3/T3) CPOS SFP HIM Module (JC169A)
HP 6600 1-port OC-3/STM-1 (E3/T3) CPOS SFP HIM Module (JC170A)
HP 6600 4-port OC-3c/STM-1c or 2-port OC-12c/STM-4c POS SFP HIM Module (JC172A)
HP 6600 2-port OC-3c/STM-1c or 1-port OC-12c/STM-4c POS SFP HIM Module (JC173A)

HP 6600 1-port OC-48c/STM-16c POS/CPOS SFP HIM Module (JC494A)
HP 6600 1-port OC-3c/STM-1c ATM SFP HIM Module (JC175A)
HP 6600 2-port OC-3c/STM-1c ATM SFP HIM Module (JC495A)
HP 6600 4-port GbE SFP HIM Module (JC171A)
HP 6600 8-port GbE SFP HIM Module (JC174A)
HP 6600 4-port Gig-T HIM Module (JC163A)
HP 6600 8-port Gig-T HIM Module (JC164A)
HP 6600 1-port 10-GbE XFP HIM Module (JC168A)
HP MSR 2-port Enhanced Sync/Async Serial MIM Module (JD540A)
HP MSR 4-port Enhanced Sync/Async Serial MIM Module (JD541A)
HP MSR 8-port Enhanced Sync/Async Serial MIM Module (JD552A)
HP MSR 2-port Gig-T MIM Module (JD548A)
HP MSR 8-port E1/CE1/PRI (75ohm) MIM Module (JD563A)
HP MSR 8-port E1/Fractional E1 (75ohm) MIM Module (JF255A)
HP MSR 8-port T1/CT1/PRI MIM Module (JC160A)
HP MSR 1-port FE3/CE3 MIM Module (JD630A)
HP MSR 8-port T1/Fractional T1 MIM Module (JC159A)
HP MSR 1-port T3/CT3/FT3 MIM Module (JD628A)
HP 6600 8-port 10/100Base-T HIM Module (JC575A)
HP 6600 2-port OC-48c/STM-16c RPR SFP HIM Module (JC576A)

Memory

HP 6600 1GB SDRAM (JC179A)

HP 6602 Router (JC176A)

HP RPS 800 Redundant Power Supply (JD183A)
HP X290 MSR30 1m RPS Cable (JD637A)

HP 6604 Router Chassis (JC178B)

HP X130 10G SFP+ LC SR Transceiver (JD092B)
HP X130 10G SFP+ LC LR Transceiver (JD094B)
HP X130 10G SFP+ LC ER 40km Transceiver (JG234A)
HP 7500 650W DC Power Supply (JD209A)
HP 7500 650W AC Power Supply (JD217A)
HP 6604 Dustproof Frame (JC572A)
HP 6604 Spare Fan Assembly (JC569A)
HP 6600 Router Software License (JC180A)
HP 6600 MCP-X1 Router Main Processing Unit (JG355A)
HP 6600 MCP-X2 Router Main Processing Unit (JG356A)
HP 6600 RPE-X1 Main Processing Unit (JC165A)
HP 6600 RSE-X1 Main Processing Unit (JC566A)
HP 6600 24-port GbE SFP Service Aggregation Platform Module (JC568A)
HP 6600 48-port Gig-T Service Aggregation Platform Module (JC567A)
HP 6600 FIP-10 Flexible Interface Platform Router Module (JG357A)
HP 6600 FIP-110 Flexible Interface Platform Module (JC166B)
HP 6600 FIP-20 Flexible Interface Platform Router Module (JG358A)
HP 6600 FIP-210 Flexible Interface Platform Module (JC167B)

HP 6608 Router Chassis (JC177B)

HP X130 10G SFP+ LC SR Transceiver (JD092B)
HP X130 10G SFP+ LC LR Transceiver (JD094B)

HP 6600 Router Series accessories (continued)

HP X130 10G SFP+ LC ER 40km Transceiver (JG234A)
HP 7500 650W DC Power Supply (JD209A)
HP 7500 650W AC Power Supply (JD217A)
HP 6608 Spare Fan Assembly (JC570A)
HP 6608 Dustproof Frame (JC573A)
HP 6600 Router Software License (JC180A)
HP 6600 MCP-X1 Router Main Processing Unit (JG355A)
HP 6600 MCP-X2 Router Main Processing Unit (JG356A)
HP 6600 RPE-X1 Main Processing Unit (JC165A)
HP 6600 RSE-X1 Main Processing Unit (JC566A)
HP 6600 24-port GbE SFP Service Aggregation Platform Module (JC568A)
HP 6600 48-port Gig-T Service Aggregation Platform Module (JC567A)
HP 6600 FIP-10 Flexible Interface Platform Router Module (JG357A)
HP 6600 FIP-110 Flexible Interface Platform Module (JC166B)
HP 6600 FIP-20 Flexible Interface Platform Router Module (JG358A)
HP 6600 FIP-210 Flexible Interface Platform Module (JC167B)

HP 6616 Router Chassis (JC496A)

HP X130 10G SFP+ LC SR Transceiver (JD092B)
HP X130 10G SFP+ LC LR Transceiver (JD094B)
HP X130 10G SFP+ LC ER 40km Transceiver (JG234A)
HP 6600 650W AC Power Supply (JC492A)
HP 6600 650W DC Power Supply (JC493A)
HP 6616 Spare Fan Assembly (JC571A)

HP 6616 Dustproof Frame (JC574A)
HP 6600 RPE-X1 Carrier Card (JC497A)
HP 6600 Router Software License (JC180A)
HP 6600 MCP-X1 Router Main Processing Unit (JG355A)
HP 6600 MCP-X2 Router Main Processing Unit (JG356A)
HP 6600 RPE-X1 Main Processing Unit (JC165A)
HP 6600 RSE-X1 Main Processing Unit (JC566A)
HP 6600 24-port GbE SFP Service Aggregation Platform Module (JC568A)
HP 6600 48-port Gig-T Service Aggregation Platform Module (JC567A)
HP 6600 FIP-10 Flexible Interface Platform Router Module (JG357A)
HP 6600 FIP-110 Flexible Interface Platform Module (JC166B)
HP 6600 FIP-20 Flexible Interface Platform Router Module (JG358A)
HP 6600 FIP-210 Flexible Interface Platform Module (JC167B)

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