



# HPE 5920 TAA-compliant Switch Series



## Key features

- Ultra-deep packet buffering
- Hewlett Packard Enterprise IRF for virtualization and a 2-tier architecture
- High 10GbE ToR port density
- IPv6 support in ToR with full L2/L3 features
- TRILL and VEPA readiness for virtualized networks

## Product overview

The HPE 5920 TAA-compliant Switch Series is made up of high-density 10GbE, ultra-deep packet buffering, top-of-rack (ToR) switches. Part of the Hewlett Packard Enterprise FlexNetwork architecture's FlexFabric solution module, these switches are ideally suited for deployments at the server access layer of large enterprise data centers.

The HPE 5920 TAA-compliant Switch Series is also designed for content delivery networks, especially when they are used to reduce network congestion at the I/O that is associated with the heavy use of server virtualization, as well as bursty multimedia,

storage applications, and other critical services. With the increase in virtualized applications and server-to-server traffic, businesses now require ToR switch innovations that will meet their needs for higher-performance server connectivity, convergence of Ethernet and storage traffic, the capability to handle virtual environments, and ultra-deep packet buffering all in a single device.

## Features and benefits

### Quality of Service (QoS)

#### • Powerful QoS features

##### – Flexible classification

creates traffic classes based on access control lists (ACLs), IEEE 802.1p precedence, IP, and DSCP or Type of Service (ToS) precedence; supports filter, redirect, mirror, remark, and logging

##### – Feature support

provides support for Strict Priority Queuing (SP), Weighted Fair Queuing (WFQ), Weighted Deficit Round Robin (WDRR), SP+WDRR together, configurable buffers, Explicit Congestion Notification (ECN), and Weighted Random Early Detection (WRED)

**Data center optimized****• High-performance 10GbE switching**

enables you to scale your server-edge 10GbE ToR deployments with 24 high-density 10GbE ports delivered in a 1RU design; delivers a 480 Gbps (357.12 Mpps) switching capacity in addition to incorporating 3.6 GB of packet buffers

**• Ultra-deep packet buffering**

provides up to a 3.6 GB packet buffer to reduce network congestion at the I/O that is associated with the heavy use of server virtualization, as well as bursty multimedia, storage applications, and other critical services

**• Higher scalability**

Intelligent Resilient Framework (IRF) technology simplifies the architecture of server access networks; up to four HPE 5920 switches can be combined to deliver unmatched scalability of virtualized access layer switches and flatter, two-tier FlexFabric networks using IRF, which reduces cost and complexity

**• Advanced modular operating system**

Comware v7 software's modular design and multiple processes deliver native high stability, independent process monitoring, and restart; the OS also allows individual software modules to be upgraded for higher availability and supports enhanced serviceability functions like hitless software upgrades with single-chassis ISSU

**• TRILL and EVB/VEPA**

Transparent Interconnection of Lots of Links (TRILL) is supported to increase the scale of enterprise data centers; EVB/VEPA provides connectivity into the virtual environment for a data center-ready environment

**• Reversible airflow**

switches are enhanced for data center hot/cold aisle deployments with reversible front-to-back or back-to-front airflow

**• Redundant fans and power supplies**

1+1 internal redundant and hot-pluggable power supplies and dual fan trays enhance reliability and availability

**• Lower OPEX and greener data center**

provide reversible airflow and advanced chassis power management

**• Data Center Bridging (DCB) protocols**

support IEEE 802.1Qbb Priority Flow Control (PFC), Data Center Bridging Exchange (DCBX), and IEEE 802.1Qaz Enhanced Transmission Selection (ETS) for converged applications

**• FCoE support**

provides support for FCoE, including expansion, fabric, trunk VF and N ports, aggregation of E-port, N-port virtualization; fabric services such as name server, registered state change notification, and login services; per-VSAN fabric services, FSPF, soft and hard zoning, Fibre Channel traceroute, ping, debugging, and FIP snooping

**• Jumbo frames**

with frame sizes of up to 10,000 bytes on Gigabit Ethernet and 10-Gigabit ports, high-performance remote backup and disaster-recovery services can be enabled

### Management

- **IEEE 802.1AB Link Layer Discovery Protocol (LLDP)**

advertises and receives management information from adjacent devices on a network, facilitating easy mapping by network management applications

- **SNMPv1, v2c, and v3**

facilitate centralized discovery, monitoring, and secure management of networking devices

- **Port mirroring**

enables traffic on a port to be simultaneously sent to a network analyzer for monitoring

- **Out-of-band interface**

isolates management traffic from user data plane traffic for complete isolation and total reachability, no matter what happens in the data plane

- **Remote configuration and management**

is available through a secure command-line interface (CLI) over Telnet and SSH; Role-Based Access Control (RBAC) provides multiple levels of access; Configuration Rollback and multiple configurations on the flash provide ease of operation; remote visibility with sFlow® and SNMP v1/v2/v3 is fully supported in HPE Intelligent Management Center (IMC)

- **ISSU and hot patching**

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

- **Autoconfiguration**

provides automatic configuration via DHCP autoconfiguration

- **Network Time Protocol (NTP) and Secure Network Time Protocol (SNTP)**

synchronize timekeeping among distributed time servers and clients; keep consistent timekeeping among all clock-dependent devices within the network so that the devices can provide diverse applications based on the consistent time

### Resiliency and high availability

- **Intelligent Resilient Framework (IRF)**

IRF technology enables an Hewlett Packard Enterprise FlexFabric to deliver resilient, scalable, and secured data center networks for physical and virtualized environments; up to four 5920 switches can be grouped together in an IRF configuration, which allows them to be configured and managed as a single switch with a single IP address; this simplifies ToR deployment and management, reducing data center deployment and operating expenses

### Layer 2 switching

- **Address Resolution Protocols (ARP)**

supports static, dynamic, and reverse ARP and ARP proxy

- **Flow Control**

IEEE 802.3x Flow Control provides intelligent congestion management via PAUSE frames

- **Ethernet Link Aggregation**

IEEE 802.3ad Link Aggregation of up to 128 groups of 16 ports; support for LACP, LACP Local Forwarding First, and LACP Short Timeout provide a fast, resilient environment that is ideal for the data center

- **Spanning Tree Protocol (STP)**

STP (IEEE 802.1D), Rapid STP (RSTP, IEEE 802.1w), and Multiple STP (MSTP, IEEE 802.1s) provide loop avoidance

- **VLAN support**

provides support for 4,096 VLANs based on port, MAC address, IPv4 subnet, protocol, and guest VLAN; supports VLAN mapping

- **IGMP support**

provides support for IGMP Snooping, Fast-Leave, Group-Policy, and IPv6; IGMP Snooping provides Layer 2 optimization of multicast traffic

- **DHCP support at Layer 2**

provides full DHCP Snooping support, including DHCP Snooping Option 82, DHCP Relay Option 82, DHCP Snooping Trust, and DHCP Snooping Item Backup

**Layer 3 services**

- **Address Resolution Protocol (ARP)**

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

- **Operations, administration and maintenance (OAM) support**

provides support for Connectivity Fault Management (IEEE 802.1AG) and Ethernet in the First Mile (IEEE 802.3AH); provides additional monitoring that can be used for fast fault detection and recovery

**Layer 3 routing**

- **Virtual Router Redundancy Protocol (VRRP) and VRRP Extended**

allow quick failover of router ports

- **Policy-based routing**

makes routing decisions based on policies set by the network administrator

- **Equal-Cost Multipath (ECMP)**

enables multiple equal-cost links in a routing environment to increase link redundancy and scale bandwidth

- **Layer 3 IPv4 routing**

provides routing of IPv4 at media speed; supports static routes, RIP and RIPv2, OSPF, BGP, and IS-IS

- **Layer 3 IPv6 routing**

provides routing of IPv6 at media speed; supports RIPng, OSPFv3, BGP4+ for IPv6, and IS-ISv6

**Additional information**

- **Green IT and power**

use the latest advances in silicon development, shut off unused ports, and use variable-speed fans to improve energy efficiency

- **Low power consumption**

is rated to have one of the lowest power usages in the industry by Miercom independent tests

**Warranty and support**

- 1-year warranty

See [hpe.com/networking/warrantysummary](https://www.hpe.com/networking/warrantysummary) for warranty and support information included with your product purchase.

- Software releases

To find software for your product, refer to [hpe.com/networking/support](https://www.hpe.com/networking/support); for details on the software releases available with your product purchase, refer to [hpe.com/networking/warrantysummary](https://www.hpe.com/networking/warrantysummary)

## HPE 5920 TAA-compliant Switch Series

### Specifications



**HPE 5920AF-24XG TAA-compliant Switch (JG555A)**

<b>Ports</b>	24 fixed 1000/10000 SFP+ ports 1 RJ-45 serial console port 1 RJ-45 out-of-band management port
<b>Power supplies</b>	2 power supply slots 1 minimum power supply required (ordered separately)
<b>Fan tray</b>	2 fan tray slots The customer must order fan trays, as fan trays are not included with the switch. This system requires two same-direction airflow fan trays to function properly. The system should not be operated with only one fan tray for more than 24 hours. The system should not be operated without a fan tray more than two minutes. The system should not be operated outside of the temperature range of 32°F (0°C) to 113°F (45°C). Failure to comply with these operating requirements may void the product warranty.
<b>Physical characteristics</b>	
Dimensions	17.32(w) x 25.98(d) x 1.72(h) in (43.99 x 65.99 x 4.37 cm) (1U height)
Weight	28.66 lb (13 kg)
<b>Memory and processor</b>	256 MB flash, 2 GB SDRAM; packet buffer size: 3.6 GB
<b>Performance</b>	
10 Gbps Latency	< 1.7 μs (64-byte packets)
Throughput	367 million pps
Routing/Switching capacity	480 Gbps
Routing table size	16000 entries (IPv4), 8000 entries (IPv6)
MAC address table size	128000 entries
<b>Environment</b>	
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)
Nonoperating/Storage relative humidity	5% to 95%, noncondensing
Acoustic	Low-speed fan: 62.1 dB, High-speed fan: 76.7 dB
<b>Electrical characteristics</b>	
Maximum heat dissipation	1249 BTU/hr (1317.7 kJ/hr)
Voltage	100–240 VAC
DC voltage	-36 to -72 VDC
Maximum power rating	366 W
Idle power	343 W
Frequency	50/60 Hz
Notes	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
<b>Safety</b>	UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1; Anatel; ULAR; GOST; EN 60950-1/A11; FDA 21 CFR Subchapter J; NOM; ROHS Compliance

## HPE 5920 TAA-compliant Switch Series

### Specifications (continued)

#### HPE 5920AF-24XG TAA-compliant Switch (JG555A)

<b>Emissions</b>	VCCI Class A; EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; AS/NZS CISPR 22 Class A; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A
<b>Immunity</b>	ETSI EN 300 386 V1.3.3
Generic	EN 55024:1998+ A1:2001 + A2:2003
EN	EN 61000-4-2; IEC 61000-4-2
ESD	EN 61000-4-3; IEC 61000-4-3
Radiated	EN 61000-4-4; IEC 61000-4-4
EFT/Burst	EN 61000-4-5; IEC 61000-4-5
Surge	EN 61000-4-6; IEC 61000-4-6
Conducted	EN 61000-4-8; IEC 61000-4-8
Power frequency magnetic field	EN 61000-4-11; IEC 61000-4-11
Voltage dips and interruptions	EN 61000-3-2; IEC 61000-3-2
Harmonics	EN 61000-3-3; IEC 61000-3-3
Flicker	
<b>Management</b>	IMC—Intelligent Management Center; command-line interface; out-of-band management; SNMP Manager; Telnet; FTP
<b>Notes</b>	The customer must order a power supply, as the device does not come with a PSU. At least one JC680A or JC681A is required.
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="https://www.hpe.com/networking/services">hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services, and response times in your area, please contact your local Hewlett Packard Enterprise sales office.

## HPE 5920 TAA-compliant Switch Series

### Specifications (continued)

<b>Standards and protocols</b> (applies to all products in series)	<p><b>BGP</b></p> <p>RFC 1163 Border Gateway Protocol (BGP)            RFC 1771 BGPv4            RFC 1997 BGP Communities Attribute            RFC 2918 Route Refresh Capability            RFC 3392 Capabilities Advertisement with BGP-4            RFC 4271 A Border Gateway Protocol 4 (BGP-4)            RFC 4360 BGP Extended Communities Attribute            RFC 4456 BGP Route Reflection: An Alternative to Full Mesh Internal BGP (IBGP)            RFC 4760 Multiprotocol Extensions for BGP-4</p> <p><b>Device management</b></p> <p>RFC 1157 SNMPv1/v2c RFC 1305 NTPv3            RFC 1591 DNS (client) RFC 1902 (SNMPv2)            RFC 1908 (SNMP v1/2 Coexistence)            RFC 2573 (SNMPv3 Applications)            RFC 2576 (Coexistence between SNMP V1, V2, V3) Multiple Configuration Files Multiple Software Images SSHv1/SSHv2 Secure Shell TACACS/TACACS+</p> <p><b>General protocols</b></p> <p>IEEE 802.1D MAC Bridges            IEEE 802.1p Priority            IEEE 802.1Q VLANs            IEEE 802.1s Multiple Spanning Trees            IEEE 802.1w Rapid Reconfiguration of Spanning Tree            IEEE 802.3ad Link Aggregation Control Protocol (LACP)            IEEE 802.3ae 10-Gigabit Ethernet            IEEE 802.3ag Ethernet OAM            IEEE 802.3ah Ethernet in First Mile over Point to Point Fiber—EFMF            IEEE 802.3x Flow Control            RFC 768 UDP            RFC 783 TFTP Protocol (revision 2)            RFC 791 IP            RFC 792 ICMP            RFC 793 TCP            RFC 826 ARP            RFC 854 TELNET            RFC 856 TELNET            RFC 868 Time Protocol            RFC 896 Congestion Control in IP/TCP Internetworks            RFC 903 RARP            RFC 950 Internet Standard Subnetting Procedure            RFC 959 File Transfer Protocol (FTP)            RFC 1058 RIPv1            RFC 1091 Telnet Terminal-Type Option            RFC 1141 Incremental updating of the Internet checksum            RFC 1213 Management Information Base for Network</p>	<p>Management of TCP/IP-based internets            RFC 1253 (OSPF v2)            RFC 1350 TFTP Protocol (revision 2)            RFC 1531 Dynamic Host Configuration Protocol            RFC 1533 DHCP Options and BOOTP Vendor Extensions            RFC 1534 DHCP/BOOTP Interoperation            RFC 1541 DHCP            RFC 1591 DNS (client only)            RFC 1624 Incremental Internet Checksum            RFC 1723 RIP v2            RFC 1812 IPv4 Routing            RFC 2131 DHCP            RFC 2236 IGMP Snooping            RFC 2338 VRRP            RFC 2453 RIPv2            RFC 2581 TCP Congestion Control            RFC 2644 Directed Broadcast Control            RFC 3046 DHCP Relay Agent Information Option            RFC 3768 Virtual Router Redundancy Protocol (VRRP)            RFC 4250 The Secure Shell (SSH) Protocol Assigned Numbers            RFC 4251 The Secure Shell (SSH) Protocol Architecture            RFC 4252 The Secure Shell (SSH) Authentication Protocol            RFC 4253 The Secure Shell (SSH) Transport Layer Protocol            RFC 4254 The Secure Shell (SSH) Connection Protocol            RFC 4364 BGP/MPLS IP Virtual Private Networks (VPNs)            RFC 4419 Diffie-Hellman Group Exchange for the Secure Shell (SSH) Transport Layer Protocol            RFC 4594 Configuration Guidelines for DiffServ Service Classes            RFC 4941 Privacy Extensions for Stateless Address Autoconfiguration in IPv6</p> <p><b>IPv6</b></p> <p>RFC 2080 RIPng for IPv6            RFC 2460 IPv6 Specification            RFC 2711 IPv6 Router Alert Option            RFC 2740 OSPFv3 for IPv6            RFC 3315 DHCPv6 (client only)            RFC 4291 IP Version 6 Addressing Architecture            RFC 4862 IPv6 Stateless Address Auto-configuration            RFC 5095 Deprecation of Type 0 Routing Headers in IPv6</p> <p><b>MIBs</b></p> <p>RFC 1213 MIB II            RFC 1907 SNMPv2 MIB            RFC 2571 SNMP Framework MIB            RFC 2572 SNMP-MPD MIB</p>	<p>RFC 2573 SNMP-Notification MIB            RFC 2573 SNMP-Target MIB            RFC 2574 SNMP USM MIB            RFC 2737 Entity MIB (Version 2)            RFC 3414 SNMP-User based-SM MIB            RFC 3415 SNMP-View based-ACM MIB            LLDP-EXT-DOT1-MIB            LLDP-EXT-DOT3-MIB            LLDP-MIB</p> <p><b>Network management</b></p> <p>IEEE 802.1AB Link Layer Discovery Protocol (LLDP)            IEEE 802.1D (STP)            RFC 3164 BSD syslog Protocol            RFC 3176 sFlow            SNMPv1/v2c/v3</p> <p><b>OSPF</b></p> <p>RFC 1587 OSPF NSSA            RFC 2328 OSPFv2            RFC 3101 OSPF NSSA            RFC 3137 OSPF Stub Router Advertisement            RFC 3623 Graceful OSPF Restart            RFC 4577 OSPF as the Provider/Customer Edge Protocol for BGP/MPLS IP Virtual Private Networks (VPNs)            RFC 4811 OSPF Out-of-Band LSDB Resynchronization            RFC 4812 OSPF Restart Signaling            RFC 4813 OSPF Link-Local Signaling            RFC 5340 OSPFv3 for IPv6</p> <p><b>QoS/CoS</b></p> <p>IEEE 802.1P (CoS)            RFC 1349 Type of Service in the Internet Protocol Suite            RFC 2474 DiffServ Precedence, including 8 queues/port            RFC 2475 DiffServ Architecture            RFC 2597 DiffServ Assured Forwarding (AF)            RFC 3168 The Addition of Explicit Congestion Notification (ECN) to IP            RFC 3247 Supplemental Information for the New Definition of the EF PHB (Expedited Forwarding Per-Hop Behavior)            RFC 3260 New Terminology and Clarifications for DiffServ Ingress Rate Limiting</p> <p><b>Security</b></p> <p>IEEE 802.1X Port Based Network Access Control            RFC 1492 TACACS+ Access Control Lists (ACLs)            Guest VLAN for 802.1x Port Security            SSHv1/SSHv2 Secure Shell</p>
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## HPE 5920 TAA-compliant Switch Series accessories

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### Transceivers

HPE X125 1G SFP LC LH40 1310nm Transceiver (JD061A)  
HPE X120 1G SFP LC LH40 1550nm Transceiver (JD062A)  
HPE X125 1G SFP LC LH70 Transceiver (JD063B)  
HPE X120 1G SFP LC BX 10-U Transceiver (JD098B)  
HPE X120 1G SFP LC BX 10-D Transceiver (JD099B)  
HPE X120 1G SFP LC SX Transceiver (JD118B)  
HPE X120 1G SFP LC LX Transceiver (JD119B)  
HPE X120 1G SFP RJ45 T Transceiver (JD089B)  
HPE X130 10G SFP+ LC SR Transceiver (JD092B)  
HPE X130 10G SFP+ LC LRM Transceiver (JD093B)  
HPE X130 10G SFP+ LC LR Transceiver (JD094B)  
HPE X130 10G SFP+ LC ER 40km Transceiver (JG234A)  
HPE X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable (JD095C)  
HPE X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable (JD096C)  
HPE X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable (JD097C)  
HPE X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable (JG081C)  
HPE X240 10G SFP+ SFP+ 7m Direct Attach Copper Cable (JC784C)

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### Power supply

HPE 58x0AF 650W AC Power Supply (JC680A)  
HPE 58x0AF 650W DC Power Supply (JC681A)

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### Fan Tray

HPE 5920AF-24XG Back (power-side) to Front (port-side) Airflow Fan Tray (JG297A)  
HPE 5920AF-24XG Front (port-side) to Back (power-side) Airflow Fan Tray (JG298A)

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