Overview

HPE FlexFabric 5980 Switch Series

Models

HPE FlexFabric 5980 48SFP+ 6QSFP28 Switch   JQ026A

Key features

- Lossless architecture with deep buffer ensures network continuity
- Large buffers deliver high performance through scalable packet processing
- High-density 10GbE with 100GbE uplinks for spine and leaf deployments, supporting 40GbE connections on the 100GbE ports with the appropriate optics
- L2/L3 VXLAN and EVPN support for virtualized environments
- OpenFlow support for investment protection nd SDN environments
- Data center convergence and resiliency with IRF Intelligent Resilient Fabric

Product overview

The HPE FlexFabric 5980 Switch is a high-performance and low-latency 10GbE top-of-rack (ToR) data center switch with 100GbE uplinks. The switch provides a powerful solution for higher performance leaf requirements and is part of the Hewlett Packard Enterprise FlexFabric data center solution, which is a cornerstone of the Cloud First Reference Architecture (CFRA)..

The FlexFabric 5980 Switch is ideally suited for deployment at the server access layer of large enterprise data centers, or at the core layer of smaller enterprises.

With the increased pace of deploying virtualized applications, adopting softwaredefined networking, and the server-to-server traffic, many data centers now require spine and ToR switch innovations that will meet their requirements. The HPE FlexFabric 5980 is optimized to meet the increasing requirements for higher-performance server connectivity, convergence of Ethernet and storage traffic, the capability to handle virtual environments, and low latency.

Features and benefits

Hewlett Packard Enterprise

Overview

Quality of Service (QoS)

- **Powerful QoS features**
    - **Flexible queue scheduling:** Including strict priority (SP), WRR, WDRR, WFQ, SP+WRR, SP+WDRR, SP+WFQ, configurable buffer, time range, queue shaping, CAR with 24 Kbps granularity.
    - **Packet filtering and remarking:** Packet filtering at L2 through L4; flow classification based on source MAC address, destination MAC address, source IP (IPv4/ IPv6) address, destination IP (IPv4/IPv6) address, port, protocol, and VLAN.

Data center optimized

- **Flexible high port density**
  The 5980 Switch enables customers to scale their server-edge 10/100GbE ToR deployments with high-density 48 fixed 10GbE SFP+ ports and 6 ports of 100 GbE delivered in a 1 RU design. The 100GbE ports can also be configured each as a 40GbE port.
- **High-performance switching**
  Cut-through and non-blocking architecture delivers low latency (~10 microsecond for 10GbE) for very demanding enterprise applications; the switch delivers high-performance switching capacity and wire-speed packet forwarding
- **Higher scalability**
  Hewlett Packard Enterprise Intelligent Resilient Fabric (IRF) technology simplifies the architecture of server access networks; up to two HPE 5980 switches can be combined to deliver unmatched scalability of virtualized access layer switches and flatter two-tier networks using IRF, which reduces cost and complexity
- **Advanced modular operating system**
  Comware v7 software's modular design and multiple processes bring 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 such as hitless software upgrades
- **Reversible airflow**
  Enhanced for data center hot-cold aisle deployment with reversible airflow-for either front-to-back or back-to-front airflow
- **Redundant fans and power supplies**
  Internal redundant and hot-pluggable power supplies and fan trays enhance reliability and availability
- **Lower OPEX and greener data center**
  Provides reversible airflow and advanced chassis power management, and improves energy efficiency through the use of the latest advances in silicon development. Shuts off unused ports, and utilizes variable speed fans, reducing energy costs.
- **Jumbo frames**
  With frame sizes of up to 10,000 bytes on Gigabit, 10GbE and 100GbE ports, allows high-performance remote backup and disaster recovery services to be enabled
- **VXLAN hardware support**
  VXLAN L2 and L3 gateway support for up to 4k tunnels. Dynamic VXLAN configuration OVSDB and ML2 support for dynamic VXLAN configuration
- **EVPN**
  Control plane protocol for VXLAN based on industry standards. It enables L2 and L3 control-plane learning of end-host reachability information, enabling organizations to scale their VXLAN infrastructure better. Integration with OpenStack Neutron plugin for overlay automation or orchestration
- **VXLAN enabled Policy-Based Routing**
  (PBR) allows the user to leverage not just the traditional functionalities available to PBR, it provides the flexibility that the next-hop can now exist behind a VXLAN tunnel endpoint. With this approach, routing decision can be influenced to forward across a VXLAN BGP EVPN fabric. Redirecting specific traffic to a firewall without VLAN or VRF stitching is only one of many use cases enabled with this additional support
- **Centralized Route Leaking**
  Multi-Protocol BGP supports safe route-leaking between Virtual Routing and Forwarding (VRF) instances by defining Route-Target policies for import and/or export respectively. Centralized Route Leaking also supports VXLAN BGP EVPN enabling customers to leak routes at one centralized point in the fabric, typically at the border leaf, which reduces the potential for introducing routing loops. Route leaking leverages the use of route-targets to control the import and export of routes.

Overview

Manageability

- **Full-featured console**
  provides complete control of the switch with a familiar CLI
- **Troubleshooting**
  - **Ingress and egress port monitoring:** enable network problem solving
  - **Traceroute and ping:** enable testing of network connectivity
- **Multiple configuration files**
  allow multiple configuration files to be stored to a flash image
- **SNMP v1, v2c and v3**
  facilitate centralized discovery, monitoring, and secure management of networking devices
- **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**
  delivered 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 is provided with
- **ISSU and hot patching**
  In Services Software Upgrade (ISSU) provides hitless software upgrades and hitless patching of the modular operating system
- **Autoconfiguration**
  provides automatic configuration via DHCP autoconfiguration
- **NTP, SNTP and PTP Support**
  synchronizes timekeeping among distributed time servers and clients; support for network time protocol (NTP), secure network time protocol (SNTP)

Resiliency and high availability

- **IRF technology**
  enables an Hewlett Packard Enterprise FlexFabric to deliver resilient, scalable, and secured data center networks for physical and virtualized environments; groups up to two HPE 5980 switches in an IRF configuration, allowing them to be configured and managed as a single switch with a single IP address; simplifies ToR deployment and management, reducing data center deployment and operating expenses
- **IEEE 802.1w Rapid Convergence Spanning Tree Protocol**
  Increases network uptime through faster recovery from failed links
- **IEEE 802.1s Multiple Spanning Tree**
  Provides high link availability in multiple VLAN environments by allowing multiple spanning trees
- **Virtual Router Redundancy Protocol (VRRP)**
  Allows groups of two routers to back each other up dynamically to create highly available routed environments
- **Hitless patch upgrades**
  Allows patches and new service features to be installed without restarting the equipment, increasing network uptime and facilitating maintenance
- **Fast protocol convergence with standard-based failure detection**
  Bidirectional Forwarding Detection (BFD) enables link connectivity monitoring and reduces network convergence time for RIP, OSPF, BGP, IS-IS, VRRP and IRF
- **Device Link Detection Protocol (DLDP)**
  Monitors link connectivity and shuts down ports at both ends if unidirectional traffic is detected, preventing loops in STP-based networks
- **Graceful restart**
  Allows routers to indicate to others their capability to maintain a routing table during a temporary shutdown and significantly reduces convergence times upon recovery; supports OSPF, BGP, and IS-IS

Overview

Layer 2 switching

- **Address Resolution Protocol (ARP)**
  Supports static, dynamic, and reverse ARP and ARP proxy
- **IEEE 802.3x Flow Control**
  Provides intelligent congestion management via PAUSE frames
- **Ethernet Link Aggregation**
  Provides IEEE 802.3ad Link Aggregation of up to 1024 groups with up to 64 ports per group; support for LACP, LACP Local Forwarding First, and LACP short time provides a fast, resilient environment that is ideal for the data center
- **Spanning Tree Protocol (STP)**
  Supports STP (IEEE 802.1D), Rapid STP (RSTP, IEEE 802.1w), and Multiple STP (MSTP, IEEE 802.1s)
- **VLAN support**
  Provides support for 4,094 VLANs based on port and VLAN mapping
- **IGMP support**
  Provides support for IGMP Snooping, Fast-Leave, and Group-Policy; IPv6 IGMP Snooping provides L2 optimization of multicast traffic
- **DHCP support**
  Provides full DHCP Snooping support for DHCP Snooping Option 82, DHCP Relay Option 82, DHCP Snooping trust, and DHCP Snooping item backup
- **FC-BB-5 Fibre Channel over Ethernet (FCoE)**
  Supports T11 standards-compliant FC-BB-5 Fibre Channel over Ethernet (FCoE), including FCoE Initialization Protocol (FIP), FCP, Fibre Channel enhanced port types VE, TE and VF, Fabric Name Server, RSCN, Login Services, and name-server zoning, per-VSAN Fabric Services, FSPF, Standard Zoning, and Fibre Channel Ping

L3 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
- **Dynamic Host Configuration Protocol (DHCP)**
  Simplifies the management of large IP networks and supports client and server; DHCP Relay enables DHCP operation across subnets
- **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

L3 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
- **Open shortest path first (OSPF)**
  Delivers faster convergence; uses the link-state routing Interior Gateway Protocol (IGP), which supports ECMP, NSSA, and MD5 authentication for increased security and graceful restart for faster failure recovery
- **Border Gateway Protocol 4 (BGP-4)**
  Delivers an implementation of the Exterior Gateway Protocol (EGP) utilizing path vectors; uses TCP for enhanced reliability for the route discovery process; reduces bandwidth consumption by advertising only incremental updates; supports extensive policies for increased flexibility; scales to very large networks

Overview

- **Intermediate system to intermediate system (IS-IS)**
  Uses a path vector Interior Gateway Protocol (IGP), which is defined by the ISO organization for IS-IS routing and extended by IETF RFC 1195 to operate in both TCP/IP and the OSI reference model (Integrated IS-IS)
- **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**
  Allows IPv6 packets to traverse IPv4-only networks by encapsulating the IPv6 packet into a standard IPv4 packet; supports manually configured, 6 to 4, and Intra-Site Automatic Tunnel Addressing Protocol (ISATAP) tunnels; is an important element for the transition from IPv4 to IPv6
- **Policy routing**
  Allows custom filters for increased performance and security; supports ACLs, IP prefix, AS paths, community lists, and aggregate policies
- **Bidirectional Forwarding Detection (BFD)**
  Enables link connectivity monitoring and reduces network convergence time for RIP, OSPF, BGP, IS-IS, VRRP and IRF
- **Multicast Routing PIM Dense and Sparse modes**
  provides robust support of multicast protocols
- **Layer 3 IPv6 routing**
  Provides routing of IPv6 at media speed; supports static routing, RIPng, OSPFv3

Additional information

- **Green IT and power**
  Improves energy efficiency through the use of the latest advances in silicon development; shuts off unused ports, and utilizes variable speed fans, reducing energy costs

Management

- **USB support**
  - **File copy**
    Allows users to copy switch files to and from a USB flash drive
- **Port mirroring**
  Enables traffic on a port to be simultaneously sent to a network analyzer for monitoring
- **Remote configuration and management**
  Is available through a CLI
- **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
- **sFlow (RFC 3176)**
  Provides scalable ASIC-based wire speed network monitoring and accounting with no impact on network performance; this allows network operators to gather a variety of sophisticated network statistics and information for capacity planning and real-time network monitoring purposes
- **Command authorization**
  Leverages RADIUS to link a custom list of CLI commands to an individual network administrator's login; an audit trail documents activity

Overview

- **Dual flash images**
  Provides independent primary and secondary operating system files for backup while upgrading
- **Command-line interface (CLI)**
  Provides a secure, easy-to-use CLI for configuring the module via SSH or a switch console; provides direct real-time session visibility
- **Logging**
  Provides local and remote logging of events via SNMP (v2c and v3) and syslog; provides log throttling and log filtering to reduce the number of log events generated
- **Management interface control**
  Provides management access through a modem port and terminal interface, as well as in-band and out-of-band Ethernet ports; provides access through terminal interface, Telnet, or SSH
- **Industry-standard CLI with a hierarchical structure**
  Reduces training time and expenses, and increases productivity in multivendor installations
- **Management security**
  Restricts access to critical configuration commands; offers multiple privilege levels with password protection; ACLs provide Telnet and SNMP access; local and remote syslog capabilities allow logging of all access
- **Information center**
  Provides a central repository for system and network information; aggregates all logs, traps, and debugging information generated by the system and maintains them in order of severity; outputs the network information to multiple channels based on user-defined rules
- **Network management**
  HPE IMC centrally configures, updates, monitors, and troubleshoots
- **Remote intelligent mirroring**
  Mirrors ingress/egress ACL-selected traffic from a switch port or VLAN to a local or remote switch port anywhere on the network

Security

- **Access control lists (ACLs)**
  Provide IP L3 filtering based on source or destination IP address or subnet and source or destination TCP/UDP port number
- **RADIUS/TACACS+**
  Eases switch management security administration by using a password authentication server
- **Secure shell**
  Encrypts all transmitted data for secure remote CLI access over IP networks
- **RADIUS network logins**
  Controls port-based access for authentication and accountability

Convergence

- **LLDP-MED (Media Endpoint Discovery)**
  Defines a standard extension of LLDP that stores values for parameters such as QoS and VLAN to configure network devices automatically such as IP phones
- **Data Center Bridging (DCB)**
  Provides support for IEEE 802.1Qbb Priority Flow Control (PFC), Data Center Bridging Exchange (DCBX), IEEE 802.1Qaz Enhanced Transmission Selection (ETS), Explicit Congestion Notification (ECN) for converged FCoE, iSCSI, and RoCE environments.

Warranty and support

- **1-year warranty**
  see **http://www.hpe.com/networking/warrantysummary** for warranty and support information included with your product purchase.

Overview

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

Configuration

Build To Order: BTO is a standalone unit with no integration. BTO products ship standalone are not part of a CTO or Rack-Shippable solution.

Standard Switch Enclosures

HPE FlexFabric 5980 48SFP+ 6QSFP28 Switch   JQ026A
- 48 1G\10G SFP\SFP+ ports (min=0 \ max=48)   See Configuration
- 6 40G\100G QSFP+\QSFP28 ports (min=0 \ max=6)   **NOTE:** 1, 2, 3, 4
- Must select min 1 Power Supply (2 slots available)
- Must select min 4 Fan Trays (5 Fan Tray Slots available)
- 1U - Height

Configuration Rules

Note 1   The following 1G Transceivers install into this Switch: (Use BTO only when adding to switch)

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

Note 2   The following 10G XCVRs and Cables install into this Switch: (Use BTO only when adding to switch)

HPE X130 10G SFP+ LC SR Transceiver	JD092B
HPE X130 10G SFP+ LC LR Transceiver	JD094B
HPE X130 10G SFP+ LC SR Data Center Transceiver	JL437A
HPE X2A0 10G SFP+ to SFP+ 7m Active Optical Cable	JL290A
HPE X2A0 10G SFP+ to SFP+ 10m Active Optical Cable	JL291A
HPE X2A0 10G SFP+ to SFP+ 20m Active Optical Cable	JL292A
HPE FlexNetwork X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable	JD095C
HPE X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JD096B
HPE FlexNetwork X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JD096C
HPE FlexNetwork X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD097C

Note 3   The following 40G XCVRs and Cables install into this Switch: (Use BTO only when adding to switch)

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

Note 4   The following 100G XCVRs and Cables install into this switch: (Use BTO only when adding to switch)

HPE X150 100G QSFP28 MPO SR4 100m MM Transceiver	JL274A

Configuration

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

Remarks:

OCA Only Model Selection Form -
HPE Offering > DataCenter Networking > FlexFabric Switches - Access:
5980 Switch Series

Rack Level Integration CTO Models

CTO Switch Chassis

HPE FlexFabric 5980 48SFP+ 6QSFP28 Switch   JQ026A
- 48 1G\10G SFP\SFP+ ports (min=0 \ max=48)   See Configuration
- 6 40G\100G QSFP+\QSFP28 ports (min=0 \ max=6)   **NOTE:** 1, 2, 3, 4, 5
- Must select min 1 Power Supply (2 slots available)
- Must select min 4 Fan Trays (5 Fan Tray Slots available)
- 1U - Height

Configuration Rules

Note 1   The following 1G Transceivers install into this Switch: (Use BTO only when adding to switch)

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

Note 2   The following 10G XCVRs and Cables install into this Switch: (Use BTO only when adding to switch)

HPE X130 10G SFP+ LC SR Transceiver	JD092B
HPE X130 10G SFP+ LC LR Transceiver	JD094B
HPE X130 10G SFP+ LC SR Data Center Transceiver	JL437A
HPE X2A0 10G SFP+ to SFP+ 7m Active Optical Cable	JL290A
HPE X2A0 10G SFP+ to SFP+ 10m Active Optical Cable	JL291A
HPE X2A0 10G SFP+ to SFP+ 20m Active Optical Cable	JL292A
HPE FlexNetwork X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable	JD095C
HPE X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JD096B
HPE FlexNetwork X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JD096C
HPE FlexNetwork X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD097C

Note 3   The following 40G XCVRs and Cables install into this Switch: (Use BTO only when adding to switch)

HPE X140 40G QSFP+ LC BiDi 100m MM Transceiver	JL251A

Configuration

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

Note 4   The following 100G XCVRs and Cables install into this switch: (Use BTO only when adding to switch)

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

Note 5   If HPE CTO Switch Chassis is selected for Rack Level Integration, Then the Switch needs to integrate (with #0D1) to the Rack.

Remarks:

Clic UNB - If an option is ordered with #0D1/#B01, then the switch must have #0D1 option.

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

Switch Options

Transceivers

SFP Transceivers

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

SFP+ Transceivers

HPE X130 10G SFP+ LC SR Transceiver	JD092B
HPE X130 10G SFP+ LC LR Transceiver	JD094B
HPE X130 10G SFP+ LC SR Data Center Transceiver	JL437A
HPE X2A0 10G SFP+ to SFP+ 7m Active Optical Cable	JL290A
HPE X2A0 10G SFP+ to SFP+ 10m Active Optical Cable	JL291A

Configuration

HPE X2A0 10G SFP+ to SFP+ 20m Active Optical Cable	JL292A
HPE FlexNetwork X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable	JD095C
HPE X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JD096B
HPE FlexNetwork X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JD096C
HPE FlexNetwork X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD097C

QSFP+ Transceivers

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

QSFP28 Transceivers

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

Cables

Multi-Mode Cables

HPE LC to LC Multi-mode OM3 2-Fiber 0.5m 1-Pack Fiber Optic Cable	AJ833A
HPE LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable	AJ834A
HPE LC to LC Multi-mode OM3 2-Fiber 2.0m 1-Pack Fiber Optic Cable	AJ835A
HPE LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable	AJ836A
HPE LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable	AJ837A
HPE LC to LC Multi-mode OM3 2-Fiber 30.0m 1-Pack Fiber Optic Cable	AJ838A
HPE LC to LC Multi-mode OM3 2-Fiber 50.0m 1-Pack Fiber Optic Cable	AJ839A
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable	QK732A
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable	QK733A
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable	QK734A
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable	QK735A
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable	QK736A
HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable	QK737A

MPO Cables

Configuration

HPE Premier Flex MPO/MPO Multi-mode OM4 12 fiber 10m Cable	QK729A
HPE Premier Flex MPO/MPO Multi-mode OM4 8 fiber 50m Cable	QK731A
HPE Premier Flex MPO/MPO OM4 100m (12ft) Cable	H6Z30A

Internal Power Supplies

For JQ026A System (std 0 // max 2) User Selection (min 1 // max 2) per switch

HPE 58x0AF 650W AC Power Supply   JC680A
- includes 1 x c13, 300w   See Configuration
                                                                               NOTE: 1, 2, 3

PDU Cable NA/MEX/TW/JP   JC680A#B2B
- C15 PDU Jumper Cord (NA/MX/TW/JP)

PDU Cable ROW   JC680A#B2C
- C15 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord   JC680A#B2E
- HPE 2.3M C13 to NEMA L6-20P Power Cord(J9936A)

No Power Cord   JC680A#AC3
- No Localized Power Cord Selected

HPE FlexFabric Switch 650W 48V Hot Plug NEBS-compliant DC Power Supply   JH336A
- includes 1 x c13, 300w

Configuration Rules

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

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

            REMARK: When Switches/Routers are Factory Racked, Then #B2B, or #B2C should be the Defaulted Power Cable
            option on the Switches/Routers.

Note 3   Default Qty 2

Remarks: Drop down under power supply should offer the following options and results:
           Switch/Router to PDU Power Cord - #B2B in NA, Mexico, Taiwan, and Japan or #B2C ROW. (Watson Default B2B or
           B2C for Rack Level CTO)
           Switch/Router/Power Supply to Wall Power Cord - Localized Option (Watson Default for BTO and Box Level CTO)
           High Volt Switch/Router/Power Supply to Wall Power Cord - #B2E Option. (Offered only in North America, Mexico,
           Taiwan, and Japan)
           No Localized Power Cord Selected - #AC3 Option

Switch Options

Fan Trays

Configuration

For JQ026A System (std 0 // max 5) User Selection (min 4 // max 5) per switch

HPE X711 Frt(prt)-Bck(pwr) HV2 Fan Tray   JH388A
                                                                                                                    See Configuration
                                                                                                                    NOTE: 1, 2

HPE X712 Bck(pwr)-Frt(prt) HV2 Fan Tray   JH389A
                                                                                                                    See Configuration
                                                                                                                    NOTE: 1

Configuration Rules

Note 1   Fan Trays cannot be mixed in the same switch enclosure

Note 2   Default Qty 5

Technical Specifications

HPE FlexFabric 5980 48SFP+ 6QSFP28 Switch (JQ026A)

I/O ports and slots	48 fixed 1000/10000 SFP+ ports 6 QSFP28 100GbE ports
Additional ports and slots	1 x 10M/100M/1000M BASE-T copper port
	1 x SFP port
	1 x mini USB console port (USB 2.0)
	1 x USB port (USB 2.0)
	1 x serial console port
Power supplies	2 power supply slots
	1 minimum power supply required (ordered separately)
Fan tray	5 fan tray slots
	To ensure good ventilation of the switch, follow these guidelines to install and remove fan trays:
	• The switch comes with the fan tray slots empty. Before powering on the switch, make sure all fan tray slots have fan trays installed and the fan trays are the same model.
	• Make sure all slots have a module or filler panel installed when the switch is operating.
	• If multiple fan trays fail on an operating switch, do not remove the fan trays at the same time. Replace the fan trays one after another and finish replacing a fan tray within 3 minutes.

Physical characteristics	**Dimensions**	17.32(w) x 18.11(d) x 1.72(h) in. (44 x 46 x 4.36 cm)
	Weight	≤ 28.66 lb. (13 kg.) shipping weight
Memory and processor	1 GB flash; Packet buffer size: , 4 GB SDRAM	
Performance	**10 Gbps Latency**	< 10 µs (64-byte packets)
	Throughput	up to 720 Mpps
	Routing/Switching capacity	800 Gbps
	Routing table size	250K entries (IPv4), 128K entries (IPv6)
	MAC address table size	350K entries
Environment	**Operating temperature**	32°F to 113°F (0°C to 45°C)
	Operating relative humidity	10% to 90%, noncondensing
	Acoustic	Low-speed fan: 63.3 dB, High-speed fan: 77.6 dB
Electrical characteristics	**Maximum heat dissipation**	986 BTU/hr (1040.29 kJ/hr)
	Voltage	100 - 240 VAC, rated
		-40 to -60 VDC, rated
		(depending on power supply chosen)
	Maximum power rating	340 W
	Frequency	50/60 Hz
	Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
Safety	UL 60950-1, CAN/CSA C22.2 No 60950-1, IEC 60950-1, EN 60950-1, AS/NZS 60950-1, FDA 21 CFR Subchapter J	
Emissions	FCC Part 15 (CFR 47) CLASS A, ICES-003 CLASS A, VCCI CLASS A, CISPR 22 CLASS A, EN 55022 CLASS A, AS/NZS CISPR22 CLASS A, CISPR 32 CLASS A, EN 55032 CLASS A, AS/NZS CISPR32 CLASS A, EN 61000-3-2, EN 61000-3-3, ETSI EN 300 386	
Immunity	CISPR 24, EN 55024, ETSI EN 300 386	

Technical Specifications

Management	IMC - Intelligent Management Center; Command-line interface; Out-of-band management; SNMP manager; Telnet; FTP
Notes	The customer must order at least one power supply and at least 4 fan kits as the device does not come with any power supplies or fan kits.
Services	Refer to the Hewlett Packard Enterprise website at: **http://www.hpe.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.

Standards and protocols (applies to all products in series)

BGP

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
RFC 7432 BGP MPLS-Based Ethernet VPN

Device Management

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)
RFC 2819 RMON
Multiple Configuration Files
Multiple Software Images
SSHv1/SSHv2 Secure Shell
TACACS/TACACS+

General Protocols

IEEE 802.1AB: LLDP IEEE 802.1ad Q-in-Q
IEEE 802.1AX-2008 Link Aggregation IEEE 802.1D MAC Bridges
IEEE 802.1p Priority IEEE 802.1Q VLANs IEEE 802.1Qaz: ETS
IEEE 802.1Qbb: PFC IEEE 802.1Qbg: EVB
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 802.3ba: 100 GbE, 40 GbE IEEE 802.3by: 25 GbE
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 950 Internet Standard Subnetting Procedure
RFC 1027 Proxy ARP RFC 1058 RIPv1

Technical Specifications

RFC 1091 Telnet Terminal-Type Option RFC 1141 Incremental updating of the Internet checksum
RFC 1142 OSI IS-IS Intra-domain Routing Protocol
RFC 1191 Path MTU discovery
RFC 1213 Management Information Base for Network Management of TCP/IP-based Internets
RFC 1253 (OSPFv2)
RFC 1531 Dynamic Host Configuration Protocol
RFC 1533 DHCP Options and BOOTP Vendor Extensions
RFC 1534 DHCP/BOOTP Interoperation RFC 1541 DHCP
RFC 1542 Clarifications and Extensions for the Bootstrap Protocol
RFC 1591 DNS (client only)
RFC 1624 Incremental Internet Checksum RFC 1723 RIPv2
RFC 1812 IPv4 Routing
RFC 2030 Simple Network Time Protocol (SNTP) v4
RFC 2131 DHCP
RFC 2236 IGMP Snooping RFC 2338 VRRP
RFC 2453 RIPv2
RFC 2581 TCP Congestion Control RFC 2644 Directed Broadcast Control RFC 2767 Dual Stacks IPv4 & IPv6
RFC 2865 Remote Authentication Dial In User Service (RADIUS)
RFC 2868 RADIUS Attributes for Tunnel Protocol Support
RFC 2890 Key and Sequence Number Extensions to GRE
RFC 3046 DHCP Relay Agent Information Option
RFC 3411 an Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks
RFC 3412 Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)
RFC 3413 Simple Network Management Protocol (SNMP) Applications
RFC 3416 Protocol Operations for SNMP RFC 3417 Transport Mappings for the Simple Network Management Protocol (SNMP)
RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)
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 4292 IP Forwarding Table MIB
RFC 4293 Management Information Base for the Internet Protocol (IP)
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 4601 Protocol Independent
Multicast-Sparse Mode (PIM-SM): Protocol Specification (revised)
RFC 4604 Using Internet Group Management Protocol Version 3 (IGMPv3) and Multicast Listener Discovery Protocol Version 2 (MLDv2) for Source-Specific Multicast
RFC 4607 Source-Specific Multicast for IP RFC 4941 Privacy Extensions for Stateless Address Auto-configuration in IPv6
RFC 5340 OSPF for IPv6
RFC 5905 Network Time Protocol Version 4: Protocol and Algorithms Specification
RFC 2929 DNS IANA Considerations

IPv6   RFC 2080 RIPng for IPv6
RFC 2460 IPv6 Specification
RFC 2461 IPv6 Neighbor Discovery

Technical Specifications

	RFC 2462 IPv6 Stateless Address Auto-configuration
	RFC 2463 ICMPv6
	RFC 2464 Transmission of IPv6 over Ethernet Networks
	RFC 2473 Generic Packet Tunneling in IPv6
	RFC 2545 Use of MP-BGP-4 for IPv6
	RFC 2563 ICMPv6
	RFC 2711 IPv6 Router Alert Option
	RFC 2740 OSPFv3 for IPv6
	RFC 2767 Dual Stack Hosts using BIS
	RFC 3315 DHCPv6 (client and relay)
	RFC 3484 Default Address Selection for IPv6
	RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6
	RFC 4213 Basic Transition Mechanisms for IPv6 Hosts and Routers
	RFC 4291 IP Version 6 Addressing Architecture
	RFC 4443 ICMPv6
	RFC 4552 Authentication/Confidentiality for OSPFv3
	RFC 4862 IPv6 Stateless Address Auto-configuration
	RFC 5095 Deprecation of Type 0 Routing Headers in IPv6
MIBs	RFC 1213 MIB II
	RFC 1907 SNMPv2 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 2737 Entity MIB (version 2)
	RFC 3176: sFlow
	RFC 3414 SNMP-User-based-SM MIB
	RFC 3415 SNMP-View-based-ACM MIB
	RFC 7348 VXLAN
	LLDP-EXT-DOT1-MIB
	LLDP-EXT-DOT3-MIB LLDP-MIB
	OpenFlow 1.3
Network Management	RFC 2580 Conformance Statements for SMIv2
	RFC 3164 BSD syslog Protocol
OSPF	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
QoS/CoS	IEEE 802.1p (CoS)
	RFC 2475 DiffServ Architecture
	RFC 2597 DiffServ Assured Forwarding (AF)

Technical Specifications

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

Security   RFC 1321 The MD5 Message-Digest Algorithm
RFC 2818 HTTP Over TLS
RFC 6192 Partial Support - Protecting the Router Control Plane
Access Control Lists (ACLs)
SSHv2 Secure Shell

Accessories

HPE FlexFabric 5980 Switch Series accessories

HPE FlexFabric 5980 48SFP+ 6QSFP28 Switch (JQ026A)

HPE 58x0AF 650W AC Power Supply	JC680A
HPE FlexFabric Switch 650W 48V Hot Plug NEBS-compliant DC Power Supply	JH336A
HPE X711 Front (Port Side) to Back (Power Side) Airflow High Volume 2 Fan Tray	JH388A
HPE X712 Back (Power Side) to Front (Port Side) Air flow High Volume 2 Fan Tray	JH389A
HPE X125 1G SFP LC LH40 1310nm Transceiver	JD061A
HPE X120 1G SFP RJ45 T Transceiver	JD089B
HPE X120 1G SFP LC SX Transceiver	JD118B
HPE X120 1G SFP LC LX Transceiver	JD119B
HPE X120 1G SFP LC LH40 1550nm Transceiver	JD062A
HPE X125 1G SFP LC LH70 Transceiver	JD063B
HPE X130 10G SFP+ LC SR Data Center Transceiver	JL437A
HPE X130 10G SFP+ LC LR Data Center Transceiver	JL439A
HPE X2A0 10G SFP+ to SFP+ 7m Active Optical Cable	JL290A
HPE X2A0 10G SFP+ to SFP+ 10m Active Optical Cable	JL291A
HPE X2A0 10G SFP+ to SFP+ 20m Active Optical Cable	JL292A
HPE FlexNetwork X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable	JD095C
HPE FlexNetwork X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JD096C
HPE FlexNetwork X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD097C
HPE FlexNetwork X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable	JG081C
HPE X140 40G QSFP+ LC BiDi 100m MM Transceiver	JL251A
HPE X2A0 40G QSFP+ to QSFP+ 7m Active Optical Cable	JL287A
HPE X2A0 40G QSFP+ to QSFP+ 10m Active Optical Cable	JL288A
HPE X2A0 40G QSFP+ to QSFP+ 20m Active Optical Cable	JL289A
HPE X140 40G QSFP+ LC LR4L 2km SM Transceiver	JL286A
HPE X140 40G QSFP+ MPO SR4 Transceiver	JG325B
HPE FlexNetwork X240 40G QSFP+ QSFP+ 1m Direct Attach Copper Cable	JG326A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 3m Direct Attach Copper Cable	JG327A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 5m Direct Attach Copper Cable	JG328A
HPE X140 40G QSFP+ LC LR4 SM 10km 1310nm Transceiver	JG661A
HPE X140 40G QSFP+ MPO MM 850nm CSR4 300m Transceiver	JG709A
HPE X240 100G QSFP28 to QSFP28 1m Direct Attach Copper Cable	JL271A
HPE X240 100G QSFP28 to QSFP28 3m Direct Attach Copper Cable	JL272A
HPE X240 100G QSFP28 to QSFP28 5m Direct Attach Copper Cable	JL273A
HPE X150 100G QSFP28 MPO SR4 100m MM Transceiver	JL274A
HPE X150 100G QSFP28 LC LR4 10km SM Transceiver	JL275A
HPE X150 100G QSFP28 LC SWDM4 100m MM Transceiver	JH419A
HPE X2A0 100G QSFP28 to QSFP28 7m Active Optical Cable	JL276A
HPE X2A0 100G QSFP28 to QSFP28 10m Active Optical Cable	JL277A
HPE X2A0 100G QSFP28 to QSFP28 20m Active Optical Cable	JL278A
HPE X150 100G QSFP28 MPO PSM4 500m SM Transceiver	JH420A
HPE X150 100G QSFP28 CWDM4 2km SM Transceiver	JH673A
HPE X110 100M SFP LC LX Transceiver	JD120B
HPE X115 100M SFP LC FX Transceiver	JD102B

Summary of Changes

Date	Version History	Action	Description of Change
07-May-2018	Version 3	Added	SKU added: JH419A
08-Jan-2018	Version 2	Changed	Key features, Product overview, Features & benefits and Accessories updated.
04-Dec-2017	Version 1	Creation	Document creation

Summary of Changes

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