# D-Link®

## Highlights

### High Performance

Get the speeds your network needs with up to 960 Gbps switching capacity and 714.3 Mpps forwarding rate

### Reliability

The DXS-3600-32S supports dual load sharing for AC power supply, as well as Data Center Bridging to provide "lossless Ethernet" transmission quality

### Energy Saving

Intelligent and removable redundant smart fans keep the switch cool and power consumption low

## DXS-3600-32S

# 24-Port Top-of-Rack 10 Gigabit Managed Switch

## Features

### High Performance and Flexibility

- Two AC/DC hot-swappable power modules for 1+1 power redundancy and load sharing
- Three hot-swappable fan trays with airflow control providing N+1 cooling redundancy
- Attain up to 480G stacking bandwidth with four devices functioning together as one[1]

### Data Center Features

- IEEE 802.1Qbb Priority-based Flow Control (PFC)
- IEEE 802.1Qaz Enhanced Transmission Selection (ETS)
- IEEE 802.1Qau Congestion Notification (QCN)

### Advanced Features

- MPLS
- OSPF/BGP/IS-IS
- ERPS (G.8032 v1/v2)
- Three Color Marker

### Easy Management

- Web-based GUI, Command Line Interface (CLI)
- RADIUS/TACAS+
- LLDP/LLDP-MED

### OAM

- IEEE 802.3ah Ethernet link OAM
- IEEE 802.1ag
- ITU-T Y.1731

The D-Link DXS-3600-32S 24-Port Top-of-Rack 10 Gigabit Managed Switch with Expansion Slot is a compact, high-performance switches that feature very low latency wire speed 10G Ethernet switching and routing. The 1U height and selectable front-to-back or back-to-front air flow make the DXS-3600-32S suitable for enterprise and campus aggregation network environments. It has 24 fixed 10G SFP+ ports and can accommodate more ports with the addition of an expansion module. The expansion modules not only provide extra 10G SFP+ ports, but also increase flexibility by allowing 120G stacking or low-cost 10GBASE-T connections for different applications.

## Convenient Deployment

The DXS-3600-32S provides your network with high-performance 10G Ethernet switching capacities of up to 960 Gbps and forwarding rates of up to 714 Mpps. These switches feature hot-swappable power supplies and fan trays, which enable the switches to have redundant, high-availability architecture. When inserting two power modules, both power modules share the load and help to extend the lifetime of the other. The DXS-3600-32S also features a modular fan design; three fans can back up each other, providing 2+1 redundancy for the system. If a fan fails or the temperature rises, the smart fans will adjust their speed automatically.

## Flexible Software

The DXS-3600-32S can be deployed using one of two different software images[1]. The Standard Image (SI) features a wide range of Layer 2, VLAN, multicasting, Quality of Service (QoS), security, data center, and static routing functions. The Enhanced Image (EI) features comprehensive IPv4/v6 routing including RIP, VRRP, OSPF, BGP, and L3 multicasting features such as IGMP, MLD, PIM-DM, SM, SDM, SSM, and DVMRP. The Enhanced Image (EI) also supports L2/L3 MPLS VPN which enables the DXS-3600-32S to be deployed as the core router of an enterprise environment, or as an aggregation switch in an MPLS environment.

## Data Center Features

Data Center Bridging (DCB) is an essential set of enhancements to Ethernet for networking in data center environments. The DXS-3600-32S supports several core components of Data Center Bridging (DCB) such as IEEE 802.1Qbb, IEEE 802.1Qaz, and IEEE 802.1Qau. IEEE 802.1Qbb (Priority-based Flow Control) provides flow control to ensure there is no data loss during network congestion. IEEE 802.1Qaz (Enhanced Transmission Selection) manages the allocation of bandwidth based on different traffic classes. IEEE 802.1Qau (Congestion Notification) provides congestion management for data flows within network domains to avoid congestion. The DXS-3600-32S also supports cut-through switching, which reduces latency when transmitting data in a network.

## Energy-Efficient

Front-to-back airflow optimises air circulation to provide more effective cooling throughout rack systems in data centers where the switches are used when compared to side-to-side airflow. The switches also feature built-in smart fans. Internal heat sensors monitor and detect temperature changes and automatically adjust the fan speed accordingly. At lower temperatures, the fans will run slower, reducing both the switch's power consumption and noise.

## Stacking with DXS-3600-EM-Stack

DXS-3600-32S with stacking module to build a physical stacking architecture which provides:

- Up to 96 10G SFP+ ports
- Up to 480G stacking bandwidth
- High redundancy and reliability

**Stacking with DXS-3600-EM-Stack module**



**DEM-CB50CXP 120G CXP Stacking Cable**

| Technical Specifications | |
|---|---|
| **General** | |
| Interfaces | • 24 fixed SFP+ 10G ports with one expansion slot |
| Console Port | • RJ-45 console port for out-of-band management |
| Management Port | • 10/100/1000 BASE-T RJ-45 Ethernet for out-of-band remote management |
| SD Card Slot | • 1 slot |
| **Performance** | |
| Switching Capacity | • 960 Gbps |
| Max. Forwarding Rate | • 714.28 Mpps |
| Packet Buffer Memory | • 9 MB |
| MAC Address Table | • 128K |
| **Physical** | |
| Power Input | • 100 to 240 V AC, 50/60 Hz |
| Maximum Power Consumption | • 116.8 W (without expansion module) |
| Standby Power Consumption | • 88.2 W |
| Heat Dissipation (Max.) | • 398.29 BTU/hr (without expansion module) |
| Heat Dissipation (Standby) | • 300.76 BTU/hr |
| Dimensions (W x L x H) | • 440 x 506 x 44 mm (17.32 x 19.92 x 1.73 in) |
| Weight | • 10.71 kg (23.6 lbs) |
| Operating Temperature | • 0 to 45 °C (32 to 113 °F) |
| Storage Temperature | • -40 to 70 °C (-40 to 158 °F) |
| Operating Humidity | • 0% to 95% RH |
| Storage Humidity | • 0% to 95% RH |
| **Certifications** | |
| Safety | • CB, cUL, LVD |
| EMI/EMC | • FCC, CE, C-Tick, IC, VCCI |

## Standard Image (SI) Features

| | | |
|---|---|---|
| **Stackability** | • DXS-3600-32S with:<br>  • DXS-3600-EM-Stack expansion module: 480G stacking bandwidth<br>• Physical Stacking<br>  • Up to 480G stacking bandwidth<br>  • Up to 4 switches in a stack<br>  • Ring/chain topology support | • Virtual Stacking/Clustering of up to 32 units<br>  • Supports D-Link Single IP Management |
| **L2 Features** | • MAC Address Table<br>  • 128K entries<br>• Flow Control<br>  • 802.3x Flow Control when using full-duplex<br>  • Back Pressure when using half-duplex<br>  • HOL Blocking Prevention<br>• Spanning Tree Protocol<br>  • 802.1D STP<br>  • 802.1w RSTP<br>  • 802.1s MSTP<br>  • Supports Root Restriction<br>• Jumbo Frame<br>  • Up to 12,000 bytes | • 802.1AX Link Aggregation<br>  • Max. 32 groups per device, 12 ports per group<br>• ERPS (Ethernet Ring Protection Switching)<br>• Port Mirroring<br>  • Supports One-to-One, Many-to-One<br>  • Supports Mirroring for Tx/Rx/Both<br>  • Supports 4 mirroring groups<br>• Flow Mirroring<br>  • Supports One-to-One, Many-to-One<br>  • Supports Mirroring for Rx<br>  • Supports 4 mirroring groups<br>• RSPAN mirroring<br>• Loopback Detection<br>• L2 Protocol Tunneling |
| **L2 Multicast Features** | • L2 Multicast Filtering<br>  • Forwards all groups<br>  • Forwards all unregistered groups<br>  • Filters all unregistered groups<br>• MLD Snooping<br>  • MLD v1/v2 Snooping<br>  • Supports 4K groups<br>  • Host-based MLD Snooping Fast Leave | • IGMP Snooping<br>  • IGMP v1/v2/v3 Snooping<br>  • Supports 4K IGMP groups<br>  • Supports 1K static multicast addresses<br>  • IGMP per VLAN<br>  • Host-based IGMP Snooping Fast Leave<br>• PIM Snooping |
| **L3 Features** | • ARP<br>  • 512 Static ARP<br>  • Supports Gratuitous ARP | • IP Interface<br>  • Supports 256 interfaces<br>• Loopback Interface<br>• IPv6 Neighbor Discovery (ND) |
| **L3 Routing** | • Static Routing<br>  • Max. 1K IPv4 entries<br>  • Max. 512 IPv6 entries<br>  • Supports secondary route<br>  • Supports Equal Cost/Weighted Cost multi-path route | • Default Routing |
| **VLAN** | • 802.1Q<br>• 802.1v Protocol-based VLAN<br>• Double VLAN (Q-in-Q)<br>  • Port-based Q-in-Q<br>  • Selective Q-in-Q<br>• Port-based VLAN<br>• MAC-based VLAN<br>• Subnet-based VLAN<br>• Private VLAN | • VLAN Group<br>  • Max. 4K static VLAN groups<br>  • Max. 4094 VIDs<br>• GVRP<br>  • Up to 4K dynamic VLANs<br>• VLAN Translation<br>• ISM VLAN (Multicast VLAN)<br>• Private VLAN<br>• Super VLAN<br>• VLAN Trunking |
| **AAA** | • 802.1X Authentication<br>  • Supports port-based access control<br>  • Supports host-based access control<br>  • Dynamic VLAN assignment<br>  • Identity-driven policy (VLAN/ACL/QoS) assignment<br>• Web-based Access Control (WAC)<br>  • Supports port-based access control<br>  • Supports host-based access control<br>  • Dynamic VLAN Assignment<br>  • Identity-driven Policy (VLAN/ACL/QoS) Assignment | • MAC-based Access Control (MAC)<br>  • Supports port-based access control<br>  • Supports host-based access control<br>  • Dynamic VLAN Assignment<br>  • Identity-driven Policy (VLAN/ACL/QoS) Assignment<br>• Guest VLAN<br>• Compound Authentication<br>• Microsoft NAP<br>  • Supports 802.1X NAP<br>  • Supports DHCP NAP<br>• RADIUS and TACACS+ authentication<br>• Authentication Database Failover<br>• Trusted Host |

| Category | Features | |
|---|---|---|
| QoS (Quality of Service) | • 802.1p Quality of Service (QoS)<br>• 8 queues per port<br>• Queue handling<br>  • Strict<br>  • Weighted Round Robin (WRR)<br>  • Strict + WRR<br>  • Round Robin (RR)<br>  • Weighted Deficit Round Robin (WDRR)<br>• QoS based on:<br>  • 802.1p Priority Queues<br>  • DSCP<br>  • IP address<br>  • MAC address<br>  • VLAN<br>  • IPv6 Traffic Class<br>  • IPv6 Flow Label<br>  • TCP/UDP port | • Bandwidth Control<br>  • Port-based (ingress/egress, min. granularity 8 Kb/s)<br>  • Flow-based (ingress/egress, min. granularity 8 Kb/s)<br>  • Per queue bandwidth control (min. granularity 8 Kb/s)<br>• Three Color Marker<br>  • trTCM<br>  • srTCM<br>• Congestion Control<br>  • WRED<br>• Support for following actions:<br>  • Remark 802.1p priority tag<br>  • Remark TOS/DSCP tag<br>  • Bandwidth Control<br>  • Committed Information Rate (CIR) |
| Access Control List (ACL) | • ACL based on:<br>  • 802.1p priority<br>  • VLAN<br>  • MAC address<br>  • EtherType<br>  • IP address<br>  • DSCP<br>  • Protocol type<br>  • TCP/UDP port number<br>  • IPv6 Traffic Class<br>  • IPv6 Flow Label | • Max. ACL entries:<br>  • 1792 ingress ACL rules<br>  • 1K egress ACL rules<br>  • 3K VLAN Access Maps<br>• Time-based ACL |
| Security | • Port Security<br>  • Supports up to 12K MAC addresses per port/system<br>• Broadcast/Multicast/Unicast Storm Control<br>• D-Link Safeguard Engine<br>• DHCP Server Screening<br>• IP-MAC-Port Binding (IMPB)<br>• Dynamic ARP Inspection<br>• IP Source Guard<br>• DHCP Snooping<br>• IPv6 Snooping<br>• DHCPv6 Guard<br>• IPv6 Route Advertisement (RA) Guard | • IPv6 ND Inspection<br>• ARP Spoofing Prevention<br>  • Max. 64 entries<br>• Traffic Segmentation<br>• SSL<br>  • Supports v1/v2/v3<br>  • Supports IPv4/v6 access<br>• SSH<br>  • Supports v2<br>  • Supports IPv4/v6 access<br>• BPDU Attack Protection<br>• DOS Attack Prevention |
| Management | • Web-based GUI<br>• CLI<br>• Telnet Server/Client<br>• TFTP Client<br>• FTP Client<br>• Traffic Monitoring<br>• SNMP<br>  • Supports v1/v2c/v3<br>• SNMP Trap<br>• System Log<br>• DHCP Client<br>• DHCP Server<br>• DHCP Relay options 12, 60, 61, 82<br>• Multiple Image<br>• Multiple Configuration<br>• Flash File System | • DNS Resolver<br>• CPU Monitoring<br>• MTU Setting<br>• Traceroute & Ping<br>• LLDP/LLDP-MED<br>• DNS Relay<br>• SMTP<br>• DHCP Auto Configuration<br>• SNTP<br>• RCP (Remote Copy Protocol)<br>• RMONv1<br>• RMONv2<br>• Trusted Host<br>• Password encryption<br>• Debug command<br>• IPv6 Stateless Address Auto-configuration (SLAAC) |

| Enhanced Image (EI) Additional Features | | |
|---|---|---|
| L3 Multicasting | • Multicast Table Size: 2K<br>• IGMP v1, v2c, v3<br>• PIM-SM<br>• PIM-DM<br>• Multicast Source Discovery Protocol (MSDP)<br>• PIM6-SSM | • PIM-Sparse-Dense Mode<br>• PIM-SSM<br>• DVMRP v3<br>• MLD v1/v2 |
| MPLS | • LDP<br>• MPLS LSP trigger filtering<br>• MPLS label-forwarding<br>• MPLS QoS<br>• MPLS ping and traceroute | • L2 protocol tunneling through PW<br>• VPWS<br>• VPLS<br>• PW Redundancy |
| L3 Features | • IPv6 Tunneling<br>  • Static<br>  • ISATAP<br>  • GRE<br>  • 6to4 | • VRRP |
| L3 VPN | • MPLS/BGP L3 VPN<br>• VRF-Lite | • MP-BGP<br>• VRF aware application |
| L3 Routing | • Supports 16K hardware routing entries shared by IPv4/IPv6<br>  • Max. 16K IPv4 entries<br>  • Max. 8K IPv6 entries<br>• Supports 8K hardware L3 forwarding entries shared by IPv4/IPv6<br>  • Max. 8K IPv4 entries<br>  • Max. 4K IPv6 entries<br>• RIP<br>  • RIP v1/v2<br>  • RIPng<br>• OSPF<br>  • OSPF v2<br>  • OSPF v3<br>  • OSPF Passive Interface<br>  • Stub/NSSA Area<br>  • OSPF Equal Cost Route | • BGPv4<br>• IS-IS<br>• IS-ISv6<br>• Route Redistribution<br>  • Default Route<br>  • Static Route<br>  • RIP<br>  • OSPF v2/v3<br>  • BGP<br>• IP Directed Broadcast<br>• Policy Based Route<br>• Bidirectional Forwarding Detection (BFD)<br>  • Supports OSPF<br>  • Supports VRRP |

## Standards

| MIB & RFC Standards | |
|---|---|
| • RFC1213 MIB II<br>• RFC1907 SNMP v2 MIB<br>• RFC5519 IGMP v3 MIB<br>• RFC1724 RIP v2 MIB<br>• RFC2021 RMONv2 MIB<br>• RFC1643, RFC2358, RFC2665 Ether-like MIB<br>• RFC4836 802.3 MAU MIB<br>• RFC4363 802.1p MIB<br>• RFC2618 RADIUS Authentication Client MIB<br>• RFC4292 IP Forwarding Table MIB<br>• RFC2932 IPv4 Multicast Routing MIB<br>• RFC2934 PIM MIB for IPv4<br>• RFC2620 RADIUS Accounting Client MIB<br>• RFC2925 Traceroute MIB<br>• RFC2925 Ping MIB<br>• RFC1850 OSPF MIB<br>• Private MIB<br>• RFC1112, RFC2236, RFC3376, RFC4541 IGMP Snooping<br>• RFC4363 802.1v<br>• RFC2338 VRRP<br>• RFC1058, RFC1388, RFC1723, RFC2453, RFC2080 RIP<br>• RFC1370 Applicability Statement for OSPF<br>• RFC1765 OSPF Database Overflow<br>• RFC2328 OSPF v2<br>• RFC2740 OSPF for IPv6<br>• RFC3101 OSPF Not-So-Stubby Area (NSSA) option; makes RFC1587 obsolete<br>• RFC2328 makes RFC2178 obsolete<br>• RFC2178 makes RFC1583 obsolete<br>• RFC1771, RFC1997, RFC2439, RFC2796, RFC2842, RFC2918 BGP<br>• RFC3973 PIM-DM<br>• RFC5059 PIM-SM<br>• RFC3569, RFC4601, RFC4608, RFC4607, RFC4604 PIM SSM<br>• RFC3376 IGMP<br>• RFC2475 Priority Queue Mapping<br>• RFC2475, RFC2598 Class of Service (CoS) | • RFC2597, RFC2598 QoS Flow Actions<br>• RFC2697, RFC2698 Three Color Marker, RFC2093, RFC2904, RFC2095, RFC2906 AAA<br>• RFC1321, RFC2144, RFC2313, RFC2420, RFC2841, RFC3394 Encryption<br>• RFC2289 One-Time<br>• RFC3580 802.1X<br>• RFC2866 RADIUS Accounting<br>• RFC2138, RFC2139, RFC2865, RFC2618 RADIUS Author. for Management Access<br>• RFC1492 TACACS+ Auth. for Management Access<br>• RFC2068, RFC2616 Web-based GUI<br>• RFC854 Telnet Server<br>• RFC783, RFC1350 TFTP Client<br>• RFC1157, RFC1901, RFC1908, RFC2570, RFC2574, RFC2575, RFC3411-17 SNMP<br>• RFC3164 System Log<br>• RFC2819 RMON v1<br>• RFC951, RFC1542, RFC2131, RFC3046 BootP/DHCP Client<br>• RFC1769 Time Setting<br>• RFC2131 DHCP Server<br>• RFC1191 MTU Setting<br>• RFC1065, RFC1066, RFC1155, RFC1156, RFC2578 MIB Structure<br>• RFC1215 MIB Traps Convention<br>• RFC4188 Bridge MIB<br>• RFC1157, RFC2571-2576, RFC3411-3415, RFC3418 SNMP MIB<br>• RFC1901-1908,RFC1442, RFC2578 SNMP v2 MIB<br>• RFC2737 Entity MIB<br>• RFC768 UDP<br>• RFC791 IP<br>• RFC792 ICMP<br>• RFC793 TCP<br>• RFC826 ARP<br>• RFC1338, RFC1519 CIDR<br>• RFC2716, RFC3748 EAP<br>• RFC2571, RFC2572, RFC2573, RFC2574 SNMP |

## Optional License Upgrade and Expansion Modules

| DXS-3600-32S-SE-LIC | • DXS-3600-32S Standard Image to Enhanced Image License |
|---|---|
| DXS-3600-EM-4QXS | • 4 x 40Gbps QSFP+ Expansion Module |
| DXS-3600-EM-4XT | • 4 x 10GBASE-T expansion module |
| DXS-3600-EM-8T | • 8 x 10/100/1000BASE-T expansion module |
| DXS-3600-EM-Stack | • 2 x 120G CXP physical stacking module |
| DXS-PWR300AC | • 300 W AC modular power supply with front-to-back airflow |
| DXS-3600-FAN-FB | • Fan tray with front-to-back airflow |

## Optional Management Software

| DV-700 | • D-View 7 Network Management Software (downloadable from http://dview.dlink.com) |
|---|---|
| DV-700-N25-LIC | • D-View 7 - 25 Node License |
| DV-700-N250-LIC | • D-View 7 - 250 Node License |
| DV-700-P10-LIC | • D-View 7 - 10 Probe License |

| Optional 1G SFP Transceivers | |
|---|---|
| DEM-310GT | • 1000BASE-LX SFP transceiver, single-mode fiber, 10 km, 3.3 V operating voltage |
| DEM-311GT | • 1000BASE-SX SFP transceiver, multi-mode fiber, 550 m, 3.3 V operating voltage |
| DEM-312GT2 | • 1000BASE-SX SFP transceiver multi-mode fiber, 2 km, 3.3 V operating voltage |
| **Optional 10G SFP+ Transceivers** | |
| DEM-431XT | • 10GBASE-SR SFP+ transceiver (w/o DDM), 80 m: OM1 & OM2 MMF, 300 m: OM3 MMF |
| DEM-432XT | • 10GBASE-LR SFP+ transceiver (w/o DDM), 10 km |
| DEM-410T | • SFP+ 10GBASE-T Copper Transceiver |
| **Optional 40G SFP Transceivers** | |
| DEM-QX01Q-SR4 | • 40GBase-SR4 QSFP+ Multi-mode Transceiver, 100 m / 150 m |
| DEM-QX10Q-LR4 | • 40GBASE-LR4 QSFP+ Single-Mode Transceiver, 10 km |
| **Optional 10G SFP+ Direct Attach Cables** | |
| DEM-CB100S | • 10G SFP+ to SFP+ 1 m Direct Attach Stacking Cable |
| DEM-CB300S | • 10G SFP+ to SFP+ 3 m Direct Attach Stacking Cable |
| **Optional 40G QSFP+ Direct Attach Cables** | |
| DEM-CB100QXS | • 40G QSFP+ to SFP+ 1 m Direct Attach Stacking Cable |
| DEM-CB300QXS | • 40G QSFP+ to SFP+ 3 m Direct Attach Stacking Cable |
| **Optional 120G CXP Direct Attach Cables** | |
| DEM-CB50CXP | • CXP to CXP 50 cm Stacking Cable |
| **10G Ethernet Adapter** | |
| DXE-820T | • Dual Port 10GBASE-T RJ-45 PCI Express Adapter |

**For more information: www.dlink.com**

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