D-Link

Product Highlights

High Performance

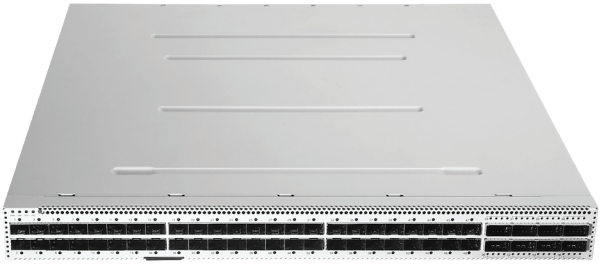
8 x 100G QSFP28 uplink ports and 48 x 25G SFP28 downlink ports provide high bandwidth connections for servers and storage.

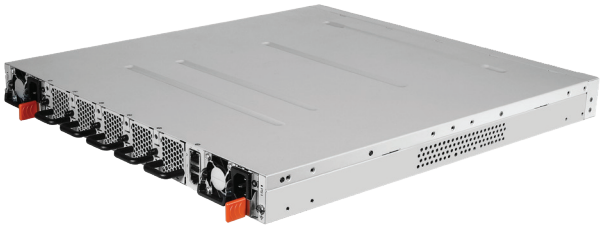
Open Network Solution

Pre-loaded with Open Network Install Environment (ONIE) and enables installation of SONiC network operating system.

Micro Data Center Applications

Advanced BGP, EVPN, VXLAN, MC-LAG for seamless multi-tenant connectivity, high-performance VRF, BGPv4/v6, OSPF, and ECMP for scalable, resilient, and future-ready infrastructure.





DQS-5000-56ZS

56-Port 25G Micro Data Center Switch

Key Features

High Availability and Flexibility

- 48 x 25G SFP28 ports and 8 x 100G QSFP28 ports for high-density networking
- 2.0 Tbps (4.0 Tbps full duplex) of switching capacity
- 2 PSUs (1+1) redundant & hot-swappable
- 5 fans (n+1) redundant and hot-swappable
- Front-to-back cooling
- Compact 1RU, 19-inch rack-mountable design
- Optimized design for micro data centers
- Industry-standard CLI

Flexibility and Compatibility

- Pre-loaded with Open Network Install Environment (ONIE) for SONiC OS
- Open Network Linux (ONL)-ready

Micro Data Center

- EVPN
- VXLAN
- MC-LAG
- VRF (virtual routing and forwarding)

Advanced L3 Features

- BGP v4/v6, OSPFv2/v3, IS-IS/IS-ISv6
- ECMP, BFD over iBGP/OSPF v2, v3/VLAN interface
- Static/default routing
- Max. IP Interface: IPv4 up to 512K, IPv6 up to 256K
- Routing Restart for OSPF, BGP

The DQS-5000-56ZS is a high-performance 25G/100G switch platform designed specifically for micro data center environments. With 48 x 25G SFP28 ports and 8 x 100G QSFP28 uplink ports, it delivers powerful Layer 2 and Layer 3 capabilities in a compact 1RU form factor. Pre-loaded with ONIE and optimized for SONiC OS, this switch is ideal for disaggregated edge-scale cloud, enterprise micro-sites, and containerized workloads where agility, openness, and density are key. The system combines open software flexibility with carrier-class hardware resiliency, bridging the gap between traditional network performance and the evolving needs of modern micro infrastructures.

Compact and Powerful for Edge Deployments

The DQS-5000-56ZS delivers up to 2.0 Tbps (4.0 Tbps full duplex) of non-blocking switching capacity with 48 x 25 Gbps SFP28 and 8 x 100Gbps ports in a compact 1RU, 19-inch rack-mount design. Front-to-back airflow, 2 (1+1) hot-swappable redundant PSUs, and 5 (N+1) hot-swappable fans ensure high reliability and thermal efficiency—ideal for space- and power-constrained micro data centers.

SONiC OS-Ready with ONIE Pre-Installed

Pre-loaded with the Open Network Install Environment (ONIE), the switch supports quick deployment of open network operating systems such as SONiC OS. It enables a fully disaggregated, modular architecture with advanced features including BGP, EVPN, VXLAN, VRF, and MC-LAG—providing hyperscale scalability at the micro data center edge.

Open and Automatable Management

Compatible with Open Network Linux (ONL) and industry-standard CLI, the switch supports DevOps-friendly operations. Integration with automation frameworks and programmable interfaces simplifies network management, improves visibility, and enhances operational efficiency in micro data center environments.

Technical Specifications

General		
Size	19-inch, 1U rack-mount size19-inch, 1U rack-mount size	
Interfaces	• 48 x 10G/25G SFP28 ports	• 8 x 40G/100G QSFP28 ports
Console Port	1 x RJ-45 console port for CLI management	
Management Port	1 x 10/100/1000BASE-T RJ-45 Ethernet port for out-of-band IP management	
USB Port	1 x USB Type A	
Performance		
CPU	Intel x86 CPU, 4-Cores	
Switch Silicon	Marvell Falcon	
Memory	8 GB DDR4 SO-DIMM w/ECC	
Storage	16 GB eMMC	
Packet Memory	24 MB	
Switch Capacity	2.0 Tbps (4.0 Tbps full duplex)	
Forwarding Rate	2380 Mpps	
Bridge FDB Entries	Up to 128K	
Router IPv4 Host Routes	Up to 288K	
Router IPv6 Host Routes	Up to 144K	
IPv4 Unicast Prefixes	Up to 512K	
IPv6 Unicast Prefixes	Up to 256K	
ARP Entries	Up to 192K	
Transmit Descriptors	192K	
Egress Queues	4K	
Physical		
Dimensions (W x D x H)	440 x 470 x 44 mm	
Weight	9.7 kg	
Power Supply Units	1 + 1 redundancy, hot-swappable	
Power Consumption	100 - 240 VAC, 50~60 Hz, 7 A max, 550 W	
Fans	5 (4 + 1 redundant), hot swappable	
Operating Temperature	0°C to 40°C	
Storage Temperature	-40°C to 70°C	
Operating Humidity	5% to 95% (RH), non-condensing	
MTBF	205,000 hours	
Acoustics	• Max: 74 dBA	• Min: 62 dBA
Heat Dissipation	1769.71 BTU/h	
Emission (EMI)	• CE Class A	• FCC Class A
Safety	LVD	

SONiC OS Image Software Features

Data Center Features	• Open network installation environment (ONIE) • 802.1Qbb priority-based flow control (PFC) • Multi-chassis link aggregation (MC-LAG)	• VXLAN • EVPN

L2 Features	• MAC address table: Up to 128K entries
	• 802.3ad link aggregation (LACP)
	  • Max. 2047 groups per device
	  • 8 ports pre-group
	• Spanning tree protocol (STP)
	  • 802.1D STP
	  • 802.1w RSTP
	  • 802.1s MSTP
	  • BPDU filter
	  • Root guard
	  • Loop guard
	  • BPDU restriction
		• Port mirroring, VLAN mirroring
		  • One-to-one, many-to-one
		  • Mirroring for Tx/Rx
		  • 7 mirror sessions
		• Flow-based mirroring
		  • Ingress & egress mirroring
		• RSPAN
		• Jumbo frame: Up to 10K
		• 802.3x flow control
		• Loopback detection
		• 4K VLANs
		• VLAN trunking

L3 Features	• Loopback interfaces
	  • IPv4/IPv6 interfaces
	  • Up to 1K
	• ARP
	  • Up to 192K ARP entries
	  • Up to 192K static ARP entries
	• UDP helper
		• ARP Proxy
		  • ARP proxy between different subnets
		  • Local ARP proxy
		• IPv6 Neighbor Discovery (ND)
		  • Up to 192K ND entries
		• Up to 192K static ND entries

L3 Routing	• Routing table
	  • IPv4: Up to 512K
	  • IPv6: Up to 256K
	• L3 forwarding table
	  • IPv4: 256K
	  • IPv6: 128K
	  • 1 entry consumed by each IPv4 route
	  • 2 entries consumed by each IPv6 route
	• Equal-cost multi-path route (ECMP)
	  • Max multi-path route: 12 K
	  • Max paths per multi-path route: 64
	• IPv4/IPv6 default route
	• Static route
	  • IPv4: Up to 512K
	  • IPv6: Up to 256K
	• Null route
	• Route preference
	• Route redistribution
	• Graceful restart (GR) for OSPF
	• Graceful restart (GR) for BGP
		• Bidirectional forwarding detection (BFD)
		  • For IPv4/IPv6 static route
		  • For RIP
		  • For OSPF v2/v3
		  • For RIPng
		  • For iBGP
		• RIP v1/v2, RIPng
		• OSPF
		  • OSPF v2/v3
		  • OSPF passive interface
		  • Stub/NSSA(v2) area
		  • Announcement on loopback interface
		  • Equal-Cost Multi-Path Route (ECMP)
		  • Text/MD5
		• BGP
		  • BGP4/BGP4+
		  • Text/MD5 authentication
		• IS-IS, IS-ISv6

L3 Multicast	• L3 multicast
	  • IPv4: Up to 512K
	  • IPv6: Up to 256K
		• IGMP v2/v3
		  • Up to 4K static IGMP groups

Quality of Service (QoS)	• 802.1p
	• Differentiated services code point (DSCP)
	• Color priority queue mapping
	• 8 hardware queues per port
	• Queue handling
	  • Strict priority
	  • Weighted round robin (WRR)
	  • Strict + WRR
	  • Weighted fair queuing (WFQ)
	  • 802.1Qaz enhanced transmission selection (ETS)
	• Congestion control
	  • Weighted random early detection (WRED)
		• Bandwidth control
		  • Port-based, flow-based, queue-based
		  • Minimum granularity 1 kbps
		  • Ingress/egress bandwidth control
		• Three color maker
		  • TrTCM: CIR/PIR minimum granularity 1 kbps
		  • SrTCM: CIR minimum granularity 1 kbps
		  • TrTCM and SrTCM support CBS/EBS/PBS
		• Policy map
		  • Remark 802.1p priority
		  • Remark ToS/DSCP
		  • Rate limiting

Access Control List (ACL)	• Max. ACL entries:
	  • Max. ingress/egress ACL entries: 6K
	  • Max. number of access control lists: Up to 4K
	  • Max. ACL rule entries: 1K
	• IP Access List based on:
	  • Source/destination IP address mask
	  • IP preference/ToS mask
	  • DSCP mask
	  • Protocol type mask
	  • TCP/UDP port number mask
	  • VLAN List
		• IPv6 access list based on:
		  • Source/destination IPv6 address mask
		  • IP preference/ToS mask
		  • DSCP mask
		  • Protocol type mask
		  • TCP/UDP port number mask
		  • IPv6 traffic class mask
		  • IPv6 flow label mask

OAM	• Non-volatile configuration and system log
	  • Factory reset to default configuration
	  • Loopback diagnostics of physical interfaces
	  • CPU utilization monitoring
	  • Memory usage monitoring
	  • Plug-in module status monitoring
	  • Port admin and operation status monitoring
	  • Port link state, duplex mode and auto negotiation state monitoring
	  • Per port source MAC address information monitoring
	  • Per port traffic packet counter
	  • Per VLAN traffic packet counter
	  • Per port traffic byte counter packet counter
	  • Per VLAN traffic byte counter packet counter
	  • Supports historical counter records
	  • Statistics for IGMP join, leave and active groups
	  • Statistics of active member ports per multicast group
	• Optical transceiver digital diagnostic monitoring (DDM)	

Security	• SSH
	  • SSH v1/v1.5/2
	  • Supports IPv4/IPv6
	  • Configurable TCP port number
		• Broadcast/multicast/unicast storm control
		  • Limit broadcast/multicast/unknown unicast (DLF)
		  • Limit known unicast
		  • Min granularity per port

Authentication, Authorization, Accounting (AAA)	• RADIUS, TACACS+ authentication
	  • IPv4/IPv6 RADIUS, TACACS+ server
		• Authentication database failover
		  • Local database when TACACS+ failed

Management	• Command Line Interface
	• SNMP
	  • SNMP v1/v2c/v3
	  • IPv4/IPv6
	  • Announce on loopback interface
	• TFTP client
	  • Supports IPv4 TFTP server
	• DHCP client
	• DHCP auto configuration
	  • DHCP option 67
	• DHCP auto image
	• DHCP relay
	  • DHCPv4/DHCPv6
	  • Option 12/60/61/82/125
	  • User-defined TLV for option 18/37/82
	  • DHCP/DHCPv6 local relay
	• Password recovery
	• Password encryption
	• MTU settings
	• Time zone settings
	• System log
	  • Number of severity levels: 7 levels
	  • Local syslog
	  • IPv4/IPv6 syslog server
	  • Announce on loopback interface
		• Command logging
		  • Command history log with account information
		• NTP
		• LLDP-MED
		• DHCP server
		  • IPv4/IPv6 address assignment
		• DHCPv6 prefix delegation (PD)
		• Flash file system
		• Multiple images
		• Multiple configurations
		• Enable login banner
		• Editable system prompt
		• Zero-touch provisioning (ZTP)
		• DNS client
		  • IPv6 address
		• IPv4/IPv6 ping
		• sFlow
		• REST API

Ordering Information	
DQS-5000-56ZS	48 Ports 25G SFP28 + 8 Ports 100G QSFP28 Micro Data Center Switch
Optional Direct Attach Cables	
DEM-CB100S	1 m 10G SFP+ Direct Attach Cable (DAC)
DEM-CB100Q28	1 m 100G QSFP28 Direct Attach Cable (DAC)
DEM-CB100Q28-4S28	1 m 100G QSFP28 to 4 x 25G SFP28 Direct Attach Cable (DAC)
DEM-CB100S28	1 m 25G SFP28 Direct Attach Cable (DAC)
DEM-CB300S	3 m 10G SFP+ Direct Attach Cable (DAC) Note: The DQS-5000-56ZS needs to be set to force mode for the DEM-CB300S connection.
DEM-S2801SR	100 m 25G SFP28 Transceiver
DEM-S2810LR	10 km 25G SFP28 Transceiver
DEM-Q2801Q-SR4	100 m 100G QSFP28 Transceiver
DEM-Q2810Q-LR4	10 km 100G QSFP28 Transceiver

Actual performances may vary due to settings, cabling, temperature, network configuration, interface, device compatibility, environmental and on-site conditions, and other similar factors. References to power capability, signal or processing speed, signal range or distance, data encryption, storage capacity, display properties, or other performance metrics are based on optimal conditions derived from industry standards and provided for informational purposes only. Specifications may be subject to change without prior notice.

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