Designed for Enterprise LAN, Data Center and MAN

- Deployable as an enterprise core or metro aggregation
- Support IPv6, MPLS services
- User-selectable AC and DC Power supplies

Superior Performance and Flexibility

- 6-Slot and 10-Slot Chassis
- Shared line card and power module for both chassis
- Scalable expansion to 384 Gigabit/10 ports or 32 40G QSFP+ Ports
- Dual Control Modules / Power Supplies
- Dual fabrics up to 2.56Tbps, 1,905Mpps packet forwarding rate
- Intelligent Line Cards with On-Board L2/L3/L4 Switching Controllers

Reliability

- Redundant Power Supply (RPS) support
- 802.1D/1w/1s Spanning Tree
- Rapid Ether Ring Protection (RERP)

Security

- Multi-Layer Access Control List (ACL)
- Address Binding
- D-Link Safeguard Engine
- DHCP Server Screening
- BPDU Attack Protection
- ARP Spoofing Prevention

AAA

- 802.1X
- RADIUS Accounting

Triple Play

- IGMP/MLD Snooping
- Port/Flow/VLAN based bandwidth control
- Granular Bandwidth Control Down to 64Kbps

OAM

- 802.3ah Link OAM
- 802.1ag, ITU-T Y.1731 Service OAM
- Port/Flow Mirroring, RSPAN
- DHCP Auto Configuration
- sFlow

Chassis-Based Switches

The D-Link's DGS-8000 series chassis-based switches are intelligent and high-performance multi-layer switches designed for enterprise, campus, data center and metropolitan area networks (MAN). Featuring a flexible modular architecture, these switches provide scalable expansion for density Gigabit, 10-Gigabit and 40-Gigabit modules, DGS-8000 series aggregates the traffic from access switches, top-of-rack switches or servers providing terabit packet switching and routing capacity.

High Availability
Both the DGS-8006 and the DGS-8010 provide 2 slots for control modules. Each control module is equipped with its own switch fabric and management agent, and can be used for redundant backup and sharing of network traffic load and management tasks. Additionally, 2 redundant backup power supplies and a hot swappable fan module help create highly available chassis-based devices suitable for mission critical network applications.

The DGS-8000 series features minimum to zero network downtime, robust security, and real-time running of bandwidth-intensive applications. Equipped with high-speed switch fabrics, redundant backup/load sharing capability, and advanced software functions including comprehensive IPv6 support, these switches provide the performance, high availability, and future-proof architecture suitable for applications of not just today but those of the future.

The DGS-8000 series offers end-to-end connectivity and granular application control

with two chassis supporting a wide range of port modules:

DGS-8006
- 6-slot chassis
- 2 slots for dual control modules
- 4 slots for user-selectable port modules
- 2 slots for 1+1 redundant power supplies
- Replaceable fan tray and modular dust filter
- 1.28Tbps backplane capacity

DGS-8010
- 10-slot chassis
- 2 slots for dual control modules
- 8 slots for user-selectable port modules
- 2 slots for 1+1 redundant power supplies
- Replaceable fan tray and modular dust filter
- 2.56Tbps backplane capacity

Flexible Modular Design
The DGS-8000 series is available in two models: the DGS-8006 6-slot chassis with 6 open slots, and the DGS-8010 10-slot chassis with 10 open slots. Two open slots are reserved for redundant backup control modules and the other open slots can be fitted with user-selectable port modules. In addition to the open slots, there are 2 slots for redundant backup power supplies, and one slot for a replaceable fan module. This modular architecture allows modules to be gradually added to meet network growth, and modules to be easily swapped anytime to fit network requirement changes.

SWITCH

Advanced Routing

- Open Shortest Path First (OSPF)
- Border Gateway Protocol (BGP)
- Policy-based Routing (PBR)
- Protocol Independent Multicast (PIM)

Future Proven IPv6

- IPv6 Neighbor Discovery (ND)
- IPv6 Management
- IPv4/v6 Dual Stack
- IPv6 Tunneling
- IPv6 Dynamic Routing

VPN Tunnel Service

- VLAN Translation
- Selective Q-in-Q
- BPDU Tunnel
- Label Distribution Protocol (LDP)
- MPLS L3 VPN (MPLS/BGP VPN)
- MPLS L2 VPN (VPWS)
- VPLS

There are two different Control Module (CM) and I/O module series available for DGS-8000 chassis. Work with 8000-CM1, the Enterprise (E-series) line cards providing wired speed forwarding for enterprise / campus backbone. Work with 8000-CM2, the Data Center (D-series) line card provide up to 2.56TB switching capacity and high density 10G switching for data centers.

Deployable as Core or Distribution Switch
Using a common set of modules for 10/100/1000BASE-T ports, PoE support, SFP, and 10-Gigabit uplinks, IT personnel can fit a DGS-8000 series switch with different port types and deploy it either as a core switch or an aggregation (i.e. distribution) switch. As a core switch, the DGS-8000 series provides numerous high-speed fiber backbones for a campus and central office network, while as an aggregation switch can provide high port density connections to workstations in an office environment, or to a subscriber's CPE in a densely populated Ethernet metro area network.

Distributed Architecture
To make use of this high-performance hardware, the DGS-8000 series utilize a distribution switching method which has each line card (the port module that directly connects to the network nodes) intelligently determine the switch path for each data packet. The switches synchronize the switching and routing information between the control cards and the line cards to map out the fastest data transfer path. With each line card capable of performing L2/3/4 on-board packet switching without reliance on the control cards, the DGS-8000 series switches can deliver very fast packet forwarding at almost zero-wait speed.

High Port Densities
Port densities can reach 192 Gigabit / 10-Gigabit or 16 40-Gigabit ports per 6-slot chassis, or 384 Gigabit / 10-Gigabit or 32 40-Gigabit ports per 10-slot chassis. All port modules are hot swappable, and can be used in either chassis type without the need to change hardware or software settings.

Application Convergence
The DGS-8000 series combines high-speed hardware with software functions like prioritized traffic QoS and multicast routing to deliver performance suitable for real-time applications such as Internet telephony, streaming multimedia, and TV. In addition, these switches offer Power over Ethernet (PoE) solutions to provide both power and network connectivity to PoE- capable devices

such as IP phones and wireless AP, and are ideal for large-scale enterprise edge deployment. An example of this application convergence would be VoIP for mobile users via wireless access points connected through DGS-8000 series switches.

Comprehensive IPv6 Support
The DGS-8000 series provides complete support for IPv6 to accommodate the potential huge increase in number of users and geographical needs of the expanding Internet. It addresses the requirements of emerging applications such as Internet-enabled wireless devices, home and industrial appliances, Internet-connected transportation, integrated telephony services, sensor networks, distributed computing, and gaming. The use of globally unique IPv6 addresses simplifies the mechanisms used for reachability and end-to-end security for network devices that are crucial to the applications and services that are driving the demand for IP addresses.

Enterprise-Wide Security
The DGS-8000 series provides not only network access security but also protection against virus and worm attacks. Access security is provided through comprehensive policy-based ACL, port security, address binding features, and Defeat IP Scan, while attacks hidden behind control protocols are thwarted to prevent the switch's CPU from being overwhelmed with unnecessary tasks which can cause degradation to a network's performance. The DGS-8000 series extends security to network management via such functions as SSH v2 and SNMP v3 with authentication and encryption of management traffic.

MPLS Functions
The DGS-8000 series supports many advanced Multiprotocol Label Switching (MPLS) functions, including MPLS label management, LDP, MPLS L2/L3 VPN, and VPLS. Enabling enterprises and service providers to build next-generation intelligent networks that deliver a wide variety of advanced, value-added services over a single infrastructure. This solution can be integrated seamlessly over any existing infrastructure, such as IP, Frame Relay, ATM, or Ethernet. Subscribers with differing access links can be aggregated on an MPLS edge without changing their current environments, as MPLS is independent of access technologies.

QoS & Bandwidth Management

The DGS-8000 series supports numerous advanced traffic management options including flow-based bandwidth control and broadcast/multicast storm control. It provides egress traffic bandwidth control with minimum granularity of 64 Kbits. Combining Rate Limiting applicable to categories of subscriber CPE and access control-based accounting, the DGS-8000 series provides functions that are useful for carriers offering services to home users in a metropolitan Ethernet network.

Comprehensive Management

To maximize management uptime, the DGS-8000 series provides optional dual redundant backup management agents in the same chassis. It offers a comprehensive set of management features to provide enterprise-wide visibility and control to network administrators for configuration, access and traffic monitoring and troubleshooting. These features are accessible through a CLI, Telnet, or SNMP console. RMON monitoring is supported, and complete debug, system, and alert information is provided.

Technical Specifications		DGS-8006	DGS-8010
Chassis	Chassis Slots	6	10
	Fixed Slots (for Control Modules)	2	2
	Open Slots (for Port Modules)	4	8 (vertical)
	Max. Switching Capacity	1.28Tbps	2.56Tbps
	Max. Packet Forwarding Rate	953Mpps	1,905Mpps
Maximum Port Density	10/100/1000Base-T Ports	192	384
	10/100/1000Base-T Ports with PoE	192	384
	Gigabit SFP Slots	192	384
	10-Gigabit SFP+ Slots	192	384
	40-Gigabit QSFP+ Slots	16	32
Dimensions (W x D x H)		437mm×500mm×486mm	437mm×450mm×931mm
Operating Temperature		0° to 40°C	
Storage Temperature		-40° to 70°C	
Operating Humidity		10% to 90% RH	
Storage Humidity		5% to 90% RH	
Emission (EMI)		FCC Class A, CE, C-Tick, VCCI	
Safety		cUL, CB	

Software Features

L2 Features
- 32K MAC Address per I/O module
- 802.3x Flow Control
- Jumbo Frame up to 9,216 bytes
- Spanning Tree Protocols
  802.1D STP
  802.1w RSTP
  802.1s MSTP
  BPDU Filtering
  Root Guard
  Loop Guard
  TC Guard
  BPDU Guard
- 802.3ad Link Aggregation
  Max. 128 groups, 8 ports per group
  Support cross-module trunk
- Port Mirroring:
  Support 4 sessions
  Support One-to-One, Many-to-One, Flow-based and RSPAN mirroring
- Rapid Ether Ring Protection (RERP)
- BPDU Tunneling

L2 Multicasting
- IGMP Snooping
  IGMP v1/v2/v3 Snooping
  Support 1024 Groups
  IGMP Fast Leave
- MLD Snooping
  Support 1024 Groups
- IGMP/MLD Proxy Reporting

VLAN
- VLAN Group
  Max. 4K VLAN
- GVRP
  802.1Q Tagged VLAN
- Port-based VLAN
- 802.1v Protocol VLAN
- Double VLAN (Q-in-Q)
  Port-based Q-in-Q
  Selective Q-in-Q
- VLAN Translation for single/double tagged packets
- MAC-based VLAN
- Subnet-based VLAN
- VLAN Trunking
- Private VLAN
- Super VLAN

L3 Features
- Max. 2000 IP Interfaces
- ARP Proxy
- IGMP/MLD Proxy
- VRRP

- IPv6 Tunneling
  Static
  ISATAP
- IPv6 Neighbor Discovery (ND)
- ICMPv6
- URPF

L3 Routing
- Up to 12K IPv4 external routes
- Up to 6K IPv6 external routes
- 1K static routing entries
- Policy-Based Routing
- RIP v1/v2/ng
- OSPF
  Support OSPF v2/v3
  OSPF Passive Interface
  Partition/Stub/Total stub/NSSA Area
  OSPF Equal Cost Route
- BGP4/BGP4+

L3 Multicasting
- Up to 4K IPv4 multicast groups
- Up to 2K IPv6 multicast groups
- IGMP Filtering
- IGMP v1,v2,v3
- MLD
- PIM-DM
- PIM-SM
- PIM-SMv6
- PIM-SSM

QoS
- IEEE 802.1p
- DSCP
- 8 Queues per Port
- Queue Handling
  Strict Priority
  Weighted Round Robin (WRR)
  Deficit Round Robin (DRR)
  Strict + WRR
  Strict + DRR
- Congestion Control
  Tail drop
  RED/WRED
- CoS Based on:
  Switch Port
  VLAN ID
  802.1p Priority Queues
  MAC Address
  IPv4/v6 Address
  DSCP
  Protocol Type
  IPv6 Traffic Class
  IPv6 Flow Label
  TCP/UDP Port
- Support Following Actions for Flows
  Remark 802.1p Priority Tag
  Remark TOS/DSCP Tag
  Bandwidth Control

- Bandwidth Control
  Port-based (Ingress/Egress, Min. Granularity 64Kbps)
  Flow-based (Ingress/Egress, Min. Granularity 64Kbps)

ACL
- Up to 3,000 ingress access rules pre I/O module
- Up to 500 egress access rules per I/O module
- ACL Based on
  802.1p Priority
  VLAN ID
  MAC Address
  Ether Type
  IPv4/v6 Address
  DSCP
  Protocol Type
  TCP/UDP Port Number
  IPv6 Traffic Class
  IPv6 Flow Label

Security
- SSH v1.5/v2
- Port Security
- Broadcast/Multicast/Unicast Storm Control
- Traffic Segmentation
- Address Binding
  IP-MAC binding
  IP-MAC-Port binding
  IP Packet Inspection
- IP Source Guard
- DoS Protection
- ARP Spoofing Prevention
- CPP

AAA
- 802.1X
  Port-based Access Control
  Host-based Access Control
- MAC Bypass (MAB)
- RADIUS
- TACACS+

Management
- Web-based GUI (Support IPv4/v6)
- Command Line Interface (CLI)
- Telnet Server (Support IPv4/v6)
- Telnet Client (Support IPv4/v6)
- TFTP Client (Support IPv4/v6)
- FTP Server
- SNMP v1/v2c/v3
  SNMP over IPv6
- SNMP Traps
- System Log
- RMON v1
  Support 1,2,3,9 Groups

- BootP/DHCP Client
- DHCP Relay
  Option 82
- DHCP Server
- DHCP Snooping
  Option 82
- DNS client
- NTP
- Ping (Support IPv4/v6)
- Traceroute (Support IPv4/v6)

Ordering Information

Chassis Base

DGS-8006-BASE Chassis base of DGS-8006 including fan tray and dust filter, without power supply

DGS-8010-BASE Chassis base of DGS-8010 including fan tray and dust filter, without power supply

Control Module

8000-CM1 Control module for DGS-8006/DGS-8010 chassis, 320G switching capacity.

8000-CM2* Control module for DGS-8006/DGS-8010 chassis, 1.28T switching capacity

Enterprise (E) I/O Module

8000-24SC2XG-E 12 SFP ports, 12 combo ports (10/100/1000Base-T or SFP), and 2 10G XFP ports

8000-24TC-E 12 10/100/1000Base-T ports and 12 combo ports (10/100/1000Base-T or SFP)

8000-24SC-E 12 SFP ports and 12 combo ports (10/100/1000Base-T or SFP)

8000-48PC-E 44 10/100/1000Base-T PoE ports and 4 combo ports (10/100/1000Base-T PoE or SFP)

8000-48TC-E 44 10/100/1000Base-T ports and 4 combo ports (10/100/1000Base-T or SFP)

8000-4XG-E 4 10GE XFP ports

Data Center (D) I/O Module

8000-16XS-D* 16 10GE SFP+ ports
8000-48XS-D* 48 10GE SFP+ ports
8000-4QXS-D* 4 40GE QSFP+ ports

Advanced Service Engine

8000-ASE-IPFIX* Advanced Service Engine for IPFIX support
8000-ASE-FW* Advanced Service Engine for firewall support

Redundant Power Supply

8000-1400AC 1400W AC power supply for DGS-8000 series

8000-1200DC* 1200W DC power supply for DGS-8000 series

8000-2000AC 2000W AC power supply for DGS-8000 series

8000-2000DC* 2000W AC power supply for DGS-8000 series

Fan Tray

8006-FAN Fan module for DGS-8006 chassis
8010-FAN Fan module for DGS-8010 chassis

* Available in Future Release

SWITCH

Optional Products *07*

Optional SFP Transceivers
DEM-211 SFP transceiver, 100BASE-FX standard, up to 2 km multi-mode fiber cable distance, 3.3V operating voltage

DEM-210 SFP transceiver, 100BASE-FX standard, up to 15 km single-mode fiber Cable distance, 3.3V operating voltage

DEM-310GT SFP transceiver, 1000BASE-LX standard, single-mode fiber, max. distance 10 km, 3.3V operating voltage

DEM-311GT SFP transceiver, 1000BASE-SX standard, multi-mode fiber, max. distance 550m, 3.3V operating voltage

DEM-312GT2 SFP transceiver 1000BASE-SX standard, multi-mode fiber, max. distance 2km, 3.3V operating voltage

DEM-314GT SFP transceiver, 1000BASE-LX standard, single-mode fiber, max. distance 50km, 3.3V operating voltage

DEM-315GT SFP transceiver, 1000BASE-LX standard, single-mode fiber, max. distance 80km, 3.3V operating voltage

DGS-712 SFP transceiver, 1000Base-T

Optional WDM SFP Transceivers
DEM-220T WDM SFP transceiver, 100BASE-FX standard, single-mode fiber, max. distance 20 km, 3.3V operating voltage, Tx wavelength 1550 nm, Rx wavelength 1310 nm

DEM-220R WDM SFP transceiver, 100BASE-FX standard, single-mode fiber, max. distance 20 km, 3.3V operating voltage, Tx wavelength 1310 nm, Rx wavelength 1550 nm

DEM-330T WDM SFP transceiver, 1000BASE-LX standard, single-mode fiber, max. distance 10 km, 3.3V operating voltage, Tx wavelength 1550 nm, Rx wavelength 1310 nm

DEM-330R WDM SFP transceiver, 1000BASE-LX standard, single-mode fiber, max. distance 10 km, 3.3V operating voltage, Tx wavelength 1310 nm, Rx wavelength 1550 nm

DEM-331T WDM SFP transceiver, 1000BASE-LX standard, single-mode fiber, max. distance 40 km, 3.3V operating voltage, Tx wavelength 1550 nm, Rx wavelength 1310 nm

DEM-331R WDM SFP transceiver 1000BASE-LX standard, single-mode fiber, max. distance 40 km, 3.3V operating voltage, Tx wavelength 1310 nm, Rx wavelength1550 nm

Optional XFP Transceivers
DEM-421XT XFP transceiver, 10GBase-SR standard, multi-mode fiber, max. distance 300 m, 3.3V operating voltage

DEM-422XT XFP transceiver, 10GBase-LR standard, single-mode fiber, max. distance 10km, 3.3V operating voltage

DEM-423XT XFP transceiver, 10GBase-ER standard, single-mode fiber, max. distance 40km, 3.3V operating voltage

Optional SFP+ Transceivers
DEM-431XT SFP+ transceiver, 10GBase-SR standard, multi-mode fiber, max. distance 300 m, 3.3V operating voltage

DEM-431XT-DD SFP+ transceiver, 10GBase-SR standard, multi-mode fiber, max. distance 300 m, 3.3V operating voltage, DDM support

DEM-432XT SFP+ transceiver, 10GBase-LR standard, single-mode fiber, max. distance 10km, 3.3V operating voltage

DEM-432XT-DD SFP+ transceiver, 10GBase-LR standard, single-mode fiber, max. distance 10km, 3.3V operating voltage, DDM support

DEM-433XT SFP+ transceiver, 10GBase-ER standard, single-mode fiber, max. distance 40km, 3.3V operating voltage

DEM-433XT-DD SFP+ transceiver, 10GBase-ER standard, single-mode fiber, max. distance 40km, 3.3V operating voltage, DDM support

Optional Management Software
DV-600S D-View 6.0 Network Management Software Standard Edition

DV-600P D-View 6.0 Network Management Software Professional Edition