L3 Gigabit Stack

Multi-Layer Routing Switch

- **Up to 48 Gigabit Connections Per Switch**
- **4 Combo 1000BASE-T/ SFP Fiber**
- **2 or 3 Open Slots for Optional 10-Gigabit Uplinks**
- **Virtual Stack or Physical High-Speed Stacking**
- **Robust Security With Enhanced Performance/Availability**
- **Malicious Traffic and Performance Degradation Prevention**

FEATURES

Flexible Choices
- Up to 48 10/100/1000BASE-T Ports or 24 SFP Slots
- 4 Combo 10/100/1000 BASE-T/SFP ports
- 2 or 3 Open Slots for Optional Single-Port 10-Gigabit Uplinks
- Stackable Through 10-Gigabit Coaxial or Fiber Ports
- Optional External Redundant Power Supply

xStack Integration
- Virtual Stack of Up to 32 Units Using Single IP Management
- Physical Stack of Up to 12 Units, 576 Gigabit Ports [1]

Quality of Service
- 802.1p Priority Queues/Multi-Layer CoS
- IP Multicast Support for Bandwidth-Intensive Applications
- Committed Information Rate

Security
- L2/L3/L4 Multi-Layer Access Control
- External RADIUS/TACACS+ Authentication Support
- SSH/SSL Support
- 802.1X Guest VLAN
- Web-based Access Control (WAC)
- MAC-based Access Control (MAC)
- D-Link Safeguard Engine
- Support Microsoft NAP

Traffic Monitoring/Bandwidth Control
- Traffic Segmentation
- Granular Bandwidth Control Down to 64Kbps Per Port
- Granular Broadcast Storm Control Down to 1pps Per Port
- 802.3ad Link Aggregation
- RMON Support
- Port Mirroring

Configuration/Management
- Web-based GUI
- Command Line Interface (CLI)
- SNMP v1, v2c, v3
- D-Link Single IP Management (SIM) v.1.6
- Telnet
- Dual Images/Configurations
- DHCP Server
- sFlow
- LLDP

[1] Calculation based on a stack of 12 DGS-3650 switches. DGS-3612/DGS-3612G switch does not support physical stacking.

The xStack DGS-3600 series of next generation Layer 3 Gigabit switches delivers performance, flexibility, security, multi-layer QoS and access, and redundant power option for SMB and enterprises. With high Gigabit port densities, SFP support, 10-Gigabit uplink options and advanced software functions, these switches can act as departmental access-layer devices or core switches to form a multi-level network structured with high-speed backbone and centralized servers. Telecom service providers can also take advantage of the high SFP density switches to form the core of their Fiber to the building (FTTB) network that extends to the subscribers' sites.

Unparalleled Flexibility

Easy to deploy and simple to manage, the DGS-3600 series can be stacked with any switches supporting D-Link's Single IP Management to form a multi-level network structured with backbone and centralized high-speed servers. This virtual stack can comprise units located anywhere on the same network domain, and uses the optional 10-Gigabit uplinks to move intra-stack traffic at 20Gbps full duplex. It can eliminate single point of failure, cable distance barriers, physical stacking method limitations and the need for stacking cabling.

Redundant Ring Stacking

Alternatively, users can install one or two 10-Gigabit uplinks, depending on whether the linear or fault-tolerant ring stacking is implemented, to create a physical stack. Up to 12 units or 576 Gigabit ports can be configured for a stack. Using the coaxial or fiber cable as the medium to stack switches together, the DGS-3600 series provides not only high-bandwidth stacking but also the cost control capability that allows users to add 10-Gigabit uplinks strictly as needed. Modules with single 10-Gigabit XFP can also be installed in any of the open slots for uplink to servers or a fiber backbone.

Security, Performance & Availability

The DGS-3600 series provides a complete set of security features, which includes L2/L3/L4 multi-layer Access Control Lists and 802.1X user authentication via TACACS+ and RADIUS servers. Built-in D-Link ZoneDefense technology allows business to integrate the switch stack with D-Link NetDefend firewalls to implement a full coverage, proactive security architecture.

The DGS-3600 series offers extensive VLAN support including GARP/GVRP and 802.1Q VLAN to enhance security and performance. To support converged applications including VoIP, ERP, Intranet and video conference, a robust set of L2/L3/L4 QoS/CoS features ensures that critical network services are served with proper priority. To prevent malicious flooding traffic caused by worm/virus infections, the DGS-3600 series provides D-Link Safeguard Engine to increase the switch's reliability, serviceability and availability. Bandwidth Control can be flexibly set for each port using pre-defined thresholds to assure a committed level of service for end users. For advanced applications, per-flow bandwidth control allows easy fine-tuning of service types based on specific IP addresses or protocols.

DGS-3600 Series

Technical Specifications

		DGS-3612	DGS-3612G	DGS-3627	DGS-3627G	DGS-3650
Interface	10/100/1000BASE-T Ports	8	-	20	-	44
	SFP Slots	-	8	-	20	-
	Combo 10/100/1000BASE-T/SFP Ports	4	4	4	4	4
	Open Slot for 10-Gigabit Uplink Modules	-	-	3	3	2
	RS-232 Console Port	1	1	1	1	1
Physical Stacking	Installable Module for Stacking	-	-	Single-Port DEM-410CX or DEM-410X		
	Max Number of Stacking Ports Installable	-	-	2 CX4 or XFP Ports		
	Stacking Speed (Per Port)	-	-	20Gbps (Full-Duplex)		
	No. of Units Per Stack	-	-	12	12	12
Optional 10-Gigabit Uplink	Single XFP Slot Module (DEM-410X)	-	-	√	√	√
	Single CX4 Port Module (DEM-410CX)	-	-	√	√	√
Performance	Switch Fabric	24Gbps	24Gbps	108Gbps	108Gbps	136Gbps
	Packet Forwarding Rate	17.86Mpps	17.86Mpps	80.36Mpps	80.36Mpps	101.19Mpps
	Packet Buffer	2MB	2MB	2MB	2MB	2MB
	MAC Address Table	16K Entries	16K Entries	16K Entries	16K Entries	16K Entries
	IP v4/v6 Routing Table	12K Entries	12K Entries	12K Entries	12K Entries	12K Entries
	IP v6 Routing Table	6K Entries	6K Entries	6K Entries	6K Entries	6K Entries
	IP v4 Host Table	8K Entries	8K Entries	8K Entries	8K Entries	8K Entries
	IP v6 Host Table	4K Entries	4K Entries	4K Entries	4K Entries	4K Entries
	Jumbo Frame Size	9,216 Bytes	9,216 Bytes	9,216 Bytes	9,216 Bytes	9,216 Bytes
Power	Power Supply	100 to 120VAC, 200 to 240VAC, 50/60Hz, Internal Power Supply				
	Power Consumption (Max.)	45.0 Watts	50.0 Watts	94.8 Watts	77.0 Watts	136.7 Watts
	Optional Redundant Power Supply	DPS-200	DPS-500	DPS-500	DPS-500	DPS-500
Physical/Environmental	Heat Dissipation	153.55 BTU/Hr	170.61 BTU/Hr	323.48 BTU/Hr	262.74 BTU/Hr	466.45 BTU/Hr
	Acoustic	<52.1dB	<51.1dB	<51.6dB	<51.3dB	<48.1dB
	Dimensions	441 x 309 x 44 mm	441 x 389 x 44 mm	441 x 389 x 44 mm	441 x 389 x 44 mm	441 x 389 x 44 mm
	Size	19-Inch Rack-Mount Width, 1U Height				
	Weight (Without Optional Module)	3.7 kg	5.0 kg	5.5 kg	5.5 kg	5.7 kg
	Operating Temperature	0° to 40°C	0° to 40°C	0° to 40°C	0° to 40°C	0° to 40°C
	Storage Temperature	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C
	Operating Humidity	10% to 90% RH	10% to 90% RH	10% to 90% RH	10% to 90% RH	10% to 90% RH
	Storage Humidity	5% to 90% RH	5% to 90% RH	5% to 90% RH	5% to 90% RH	5% to 90% RH
	EMI	FCC Class A, CE, C-Tick,VCCI				
	Safety	cUL, CB	cUL, CB	cUL, CB	cUL, CB	cUL, CB
	MTBF	402,111 hours	342,646 hours	287,631 hours	289,946 hours	246,838 hours
	3rd Party Certification	MEF 9,14	MEF 9,14	MEF 9,14	MEF 9,14	MEF 9,14

Technical Specifications

Stackability
- Virtual Stacking Support
  - D-Link Single IP Management v1.6
  - Up to 32 devices per virtual stack
  - Up to 20G stacking bandwidth
- Physical stacking
  - Support Duplex Chain/ Duplex Ring topology
  - Up to 40G bandwidth
  - Up to 12 units per stack
  - Support backup master
  - Allows trunking or mirroring to span multiple units of the stack

L2 Features
- MAC Address Table: 16K
- Flow Control
  - 802.3x Flow Control
  - HOL Blocking Prevention
- Jumbo Frame up to 9,216 Bytes
- IGMP snooping
- IGMP v1/v2/v3 Snooping
  - Support 1K Groups
  - IGMP Snooping Fast Leave
  - Host-Based IGMP Fast Leave*
- MLD Snooping
  - MLD v1 Snooping
  - Support 1K Groups
  - MLD Snooping Fast Leave
- Spanning Tree
  - 802.1D STP
  - 802.1w RSTP
  - 802.1s MSTP
  - Per port / per device BPDU filtering
  - Root Restriction*
- Loopback Detection
- 802.3ad Link Aggregation
- Max. 32 Groups per device
  - 8 Gigabit ports or 2 10G ports per group
- Port Mirroring:
  - One-to-One
  - Many-to-One
  - Flow-based Mirroring
  - RSPAN
- L2 Protocol Tunneling

VLAN
- VLAN Group
- Max. 4K Static VLAN Groups
- Max. 255 Dynamic VLAN Groups
- 802.1Q Tagged VLAN
- 802.1v Protocol VLAN
- GVRP
- Double VLAN (Q-in-Q)
  - Port-based Q-in-Q
  - Selective Q-in-Q
- MAC-based VLAN *

L3 Features
- 256 IP interfaces
- VRRP
- IPv6 Tunneling *
  - Static
  - ISATAP
  - GRE
  - 6to4
- IPv6 Ready Phase 1/2
- Proxy ARP
- Gratuitous ARP

L3 Routing
- 12K hardware routing entries shared by IPv4/v6
  - Max. 12K IPv4 routes
  - Max. 6K IPv6 routes
- 8K hardware L3 forwarding entries shared by IPv4/v6
  - Max. 8K IPv4 entries
  - Max. 4K IPv6 entries
- 256 static routing entries for IPv4, 128 entries for IPv6
  - Supports ECMP / WCMP
- Policy-based Route
- RIP v1/v2
- RIPng (IPv6) *
- OSPF
  - OSPF v2
  - OSPF v3 (IPv6)
  - OSPF Passive Interface
  - Stub/NSSA Area
  - OSPF Equal Cost Route
- BGP v4 *

Multicasting
- 1K hardware multicast groups
- PIM-DM
- PIM-SM
- PIM Sparse-Dense Mode
- DVMRP v3
- IGMP v1/v2/v3

QoS (Quality of Service)
- 802.1p Class of Service (CoS)
- 8 queues
- Queue Handling
  - Strict
  - Weighted Round Robin (WRR)
  - Strict +WRR
- 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
  - User-defined Packet Content
- Support Following Actions for Flows
  - Remark 802.1p Priority Tag
  - Remark TOS/DSCP Tag
  - Bandwidth Control
  - Flow Statistics
  - Committed Information Rate (CIR), min. granularity 1Kbps
- Bandwidth Control
  - Port-based (Ingress/Egress, min. granularity 64Kbps)
  - Flow-based (Ingress, min. granularity 64Kbps)
- Time-based QoS

ACL (Access Control List)
- Up to 1792 access rules
- 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
  - User-Defined Packet Content
- ACL Statistics
- Time-based ACL

Security
- SSH v1/v2
- SSL v1/v2/v3
- Port Security up to 16 MAC addresses per port
- Broadcast/Multicast/Unicast Storm Control
- Traffic Segmentation
- IP-MAC-Port Binding
  - ARP Packet Inspection
  - IP Packet Inspection
  - DHCP Snooping
  - DHCPv6 and NDP Snooping *
  - Support up to 500 Address Binding Entries per Device
- D-Link Safeguard Engine
- DHCP Server Screening
- CPU Interface Filtering
- ARP Spoofing Prevention *
- BPDU Attack Protection *

AAA
- 802.1X
  - Port-based Access Control
  - Host-based Access Control
  - Dynamic VLAN Assignment
- Web-based Access Control (WAC)
  - Port-based Access Control
  - Host-based Access Control
  - Dynamic VLAN Assignment
- MAC-based Access Control (MAC)
  - Port-based Access Control
  - Host-based Access Control
  - Dynamic VLAN Assignment

- Microsoft NAP
  - Support 802.1X NAP
  - Support DHCP NAP
- Guest VLAN
- RADIUS and TACACS+ authentication for switch access
- 3-Level User Account

Management
- Web-based GUI
- Command Line Interface (CLI)
- Telnet Server
- Telnet Client *
- TFTP Client
- ZModem
- SNMP v1/v2c/v3
- SNMP Trap
- System Log
- RMON v1
  - Support 1,2,3,9 Groups
- RMON v2
  - Support ProbeConfig Group
- sFlow
- LLDP
- BootP/DHCP Client
- DHCP Auto-Configuration
- DHCP Relay
- DHCP Relay Option 60; 61*
- DHCP Relay Option 82
- DHCP Server
- Flash File System
- Multiple Images
- Multiple Configurations
- CPU Monitoring
- Debug Command *
- SNTP
- ICMPv6
- IPv6 Neighbor Discovery (ND)
- DHCPv6 Client *
- DHCPv6 Relay *
- DHCPv6 Server *
- Cable Diagnostics *

MIB/IETF Standard
- RFC1213 MIB-II
- RFC1493 Bridge MIB
- RFC1907 SNMPv2 MIB
- RFC2571~2576 SNMP MIB
- RFC1271, 2819 RMON MIB
- RFC2021 RMON v2 MIB
- RFC2665 Ether-like MIB
- RFC2668 MAU MIB
- RFC2674 802.1p MIB
- RFC2233, 2863 IF MIB
- RFC2618 RADIUS Authentication Client MIB
- RFC1724 RIP v2 MIB
- RFC1850 OSPF v2 MIB
- RFC2096 IP Forwarding Table MIB (CIDR)
- RFC2787 VRRP MIB
- RFC2932 IPv4 Multicast Routing MIB
- RFC2934 PIM MIB for IPv4
- RFC2620 RADIUS Accounting Client MIB
- RFC2933 IGMP MIB
- Ping MIB *
- Traceroute MIB *
- D-Link Private MIB
- RFC768 UDP
- RFC783 TFTP
- RFC 791 IP
- RFC 792 ICMP
- RFC 793 TCP
- RFC 826 ARP
- RFC854 Telnet
- RFC951, 1542 BootP
- RFC2068 HTTP
- RFC2338 VRRP
- RFC2529, 3053, 3056 IPv6 Tunnel
- RFC2138 RADIUS
- RFC2139 RADIUS Accounting
- RFC1492 TACACS
- RFC3176 sFlow
- RFC2598 DiffServ Expedited Forwarding

Function available in future firmware upgrade

Deploying the DGS-3600 in an Enterprise Network
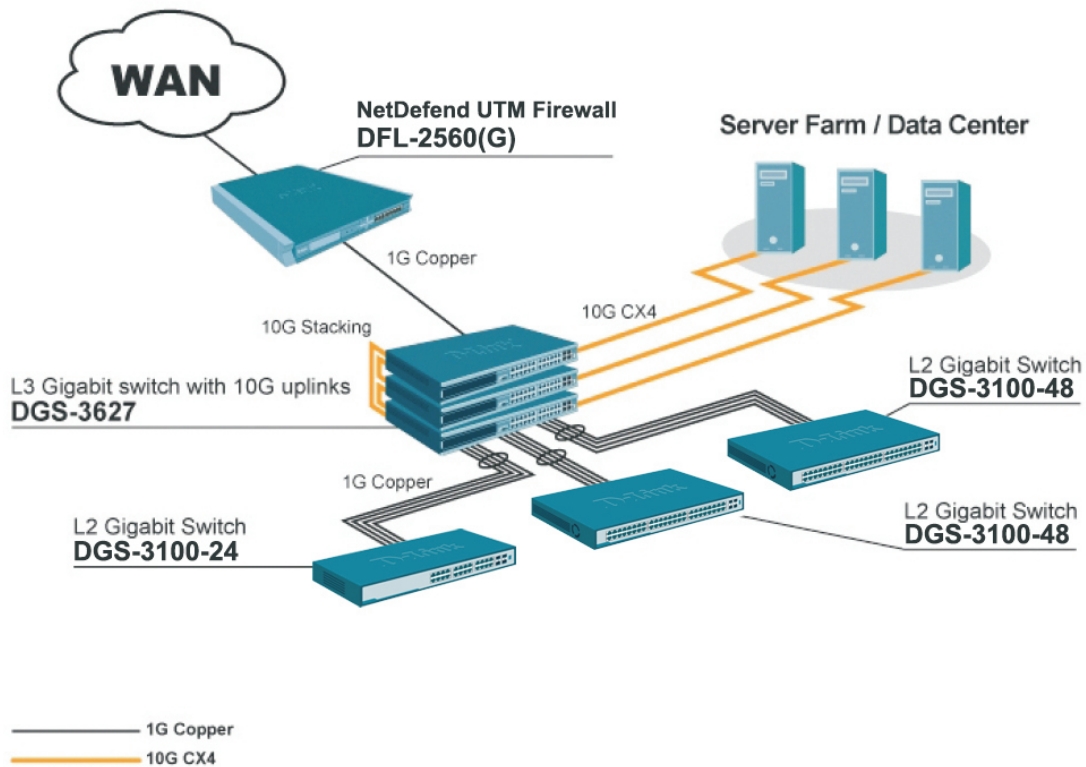
Deploying the DGS-3600 in a Carrier Network
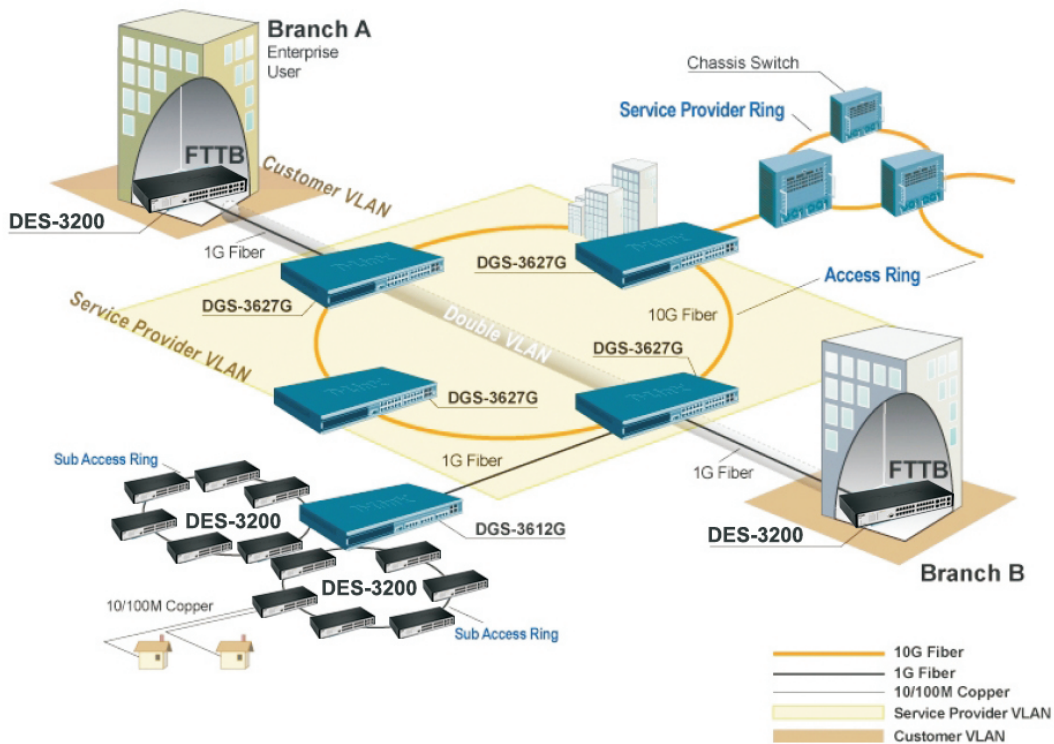
Optional Products

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

Optional 10Gbps Uplink Modules
DEM-410X   1-slot 10-Gigabit XFP uplink module
DEM-410CX   1-port 10-Gigabit CX4 uplink module

Optional 10Gbps XFP Transceivers
DEM-421XT   XFP transceiver, 10GBASE-SR standard, multi-mode fiber, max. distance 300 m, 3.3/5V
DEM-422XT   XFP transceiver, 10GBASE-LR standard, single-mode fiber, max. distance 10 km, 3.3/5V
DEM-423XT   XFP transceiver, 10GBASE-ER standard, single-mode fiber, max. distance 40 km, 3.3/5V

Optional 1Gbps SFP Transceivers
DEM-310GT   SFP transceiver, 1000BASE-LX standard, single-mode fiber, max. distance 10km, 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
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
DEM-211   SFP transceiver, 100BASE-FX standard, up to 2 km multi-mode fiber cable distance, 3.3V operating voltage (for DGS-3612 and DGS-3612G only)
DEM-210   SFP transceiver, 100BASE-FX standard, up to 15 km single-mode fiber cable distance, 3.3V operating voltage (for DGS-3612 and DGS-3612G only)
DEM-220T   100Base-BX, Wavelength Tx:1550nm Rx:1310nm,Single-mode, 20km (for DGS-3612 and DGS-3612G only)
DEM-220R   100Base-BX, Wavelength Tx:1310nm Rx:1550nm,Single-mode, 20km (for DGS-3612 and DGS-3612G only)

Optional Redundant Power Supply
DPS-500   140-watt redundant power supply
DPS-500DC   140-watt DC redundant power supply
DPS-800   2-slot redundant power supply chassis
DPS-900   8-slot redundant power supply chassis

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