

### Product Highlights

#### Designed for Enterprise and Campus Networks

Built to simplify network design, improve network scalability and flexibility, and lay a foundation for building the next generation networks

#### High Availability through Virtualization

Virtual Switching and Virtual Ethernet Port Aggregation technology provide agile expansion and redundancy to ensure rock-solid connectivity

#### Comprehensive Security Solution

Support for Access Control List(ACL) and multiple user authentication methods to help secure the network environment



## DGS-6650 Series Managed L3 Chassis Switch

### Features

#### High Performance

- Cost-effective Entry-level Chassis Switch
- Superior Performance with up to 88.62Tbps switching capacity

#### IPv4/IPv6 Multilayer Switching

- Scalable high-density 10 Gigabit Ethernet ports
- Hardware support for IPv4/IPv6 multilayer switching

#### Superior Multiservice Support Capabilities

- Rich multicast protocols such as IGMP Snooping, IGMP, MLD, PIM, PIM for IPv6
- Features Equal-cost Multipath routing (ECMP)

#### Ease of Use and Ease of Management

- Supports Network Timing Protocol (NTP)
- Syslog support for network maintenance and management

#### Robust Security

- Advanced L2/L3 ACL
- CPU Protection Policy

D-Link DGS-6650 Chassis Switch is specially designed for next-gen integrated network. The switch future supports future Ethernet requirements as the leading technologies break customer physical network barriers to form an integrated network. Virtualization technology is implemented significantly lowers the total cost of investment by improving device utilization. The DGS-6650 Chassis Switch is ideal for MAN, campus network and settings alike.

### Virtualization for Demand-based Allocation

The DGS-6650 Chassis Switch supports virtualization technology can virtualize 2 devices into one logical unit, which largely minimizes the number of network nodes and reduce maintenance workload. Superior 50~200ms link failover ensures smooth and uninterrupted transmission of key services. The DGS-6650 Chassis Switch supports cross-device link aggregation for easy double uplink to server/switch, effectively maximizing bandwidth investment return.

### Multi-processing Modular Operating System

The DGS-6650 Chassis Switch software platform is designed based on the next generation multi-processing modular operating system to integrate the service features such as loosely coupled firewall, wireless and authentication into a unified cloud network operating system. The DGS-6650 software platform also supports full virtualization and offers rich data center and campus network features. The key availability indicators such as multi-processing modules, process backup and hot patch have reached the industry-leading level.

### Flexible and Comprehensive Security Policies

A number of security features are integrated into the DGS-6650 Series to help protect other core devices and networks. Built into the DGS-6650 switches is CPU Protection Policy (CPP) technology which automatically differentiates the traffic of multi-layer protocol IPv4/IPv6 packets destined for the CPU and limits the traffic speed to prevent abnormal packets from attacking the CPU and consuming unnecessary resources. This helps to ensure the stability of CPUs for other core devices and the DGS-6650 Series in the IPv4/IPv6 L3 network and L2 network environments and keeps the network running in an optimal state.

Other security measures include hardware-based IPv6 ACL allows IPv4/IPv6 users to coexist and control the resources access by users. The DGS-6650 Series also implements flexible binding of a port or the system to the IP address and MAC address of a user, strictly limiting user access on a port or in the entire system. There is also support for DHCP snooping, which allows DHCP responses from trusted ports only. By using DHCP listening and by monitoring ARP dynamically and checking the user IP address, the DGS-6650 Series switches discard illegal packets inconsistent with binding entries to effectively prevents ARP and source IP address spoofing.

### Superior Multiservice Support Capabilities

The DGS-6650 has led the industry in supporting the latest generation international traffic monitoring standard, the IP Flow Information Export (IPFIX). IPFIX technology can take statistics and detect abnormalities of all traffic on the network and export various network traffic analysis reports, including the traffic usage report, history report, interface report, resolvable host addresses, traffic analysis, and variable display. These reports can help an administrator to rapidly analyze problems with the network when abnormalities and provide objective and accurate policy-making references for network capacity planning, network application monitoring, and failure diagnosis to actually implement visibility of network traffic.

The DGS-6650 Series also supports IPv4 and IPv6 multicast functions, including a rich set of multicast protocols such as IGMP Snooping, IGMP, MLD, PIM, PIM for IPv6, and MSDP; all of which provide multicast service support for IPv4 networks, IPv6 networks, and IPv4/IPv6 dual-stack networks. There is also support for Internet Group Management Protocol (IGMP) source port checking and source IP address checking to guard against illegal multicast sources which help improve network security.

### Rock Solid Reliability

The DGS-6650 supports spanning tree protocols (STP) 802.1D, 802.1w, as well as 802.1s to ensure rapid convergence, improve fault tolerance capabilities, ensure stable operation of networks, and provide redundant networking pathways. Virtual Router Redundant Protocol (VRRP) and Rapid Link Detection Protocol (RLDP) effectively ensure network stability. RLDP detects the connectivity of links and whether an optical fiber link is normal from both ends and supports the loop detection function based on the port to prevent network faults caused by loopbacks originating from the connection of devices such as hubs to ports.

The DGS-6650 Series also supports Rapid Ethernet Ring Protection Protocol (RERP), a Layer 2 redundancy protocol designed for the core Ethernet network. When loop blocking and link recovery are performed on a master device, the DGS-6650 Series switches will report its link status to the master device without needing to be processed by other non-master devices. This allows the loop blocking time and link recovery to be shorter compared to when STP is used. When STP is disabled, the Rapid Ethernet Uplink Protection Protocol (REUP) can also provide basic link redundancy through a rapid uplink protection function and help to provide faster subsecond-level fault recovery than STP would be able to.

### Carrier- Class Reliability

Redundant design of the DGS-6650 Switch Series key components delivers excellent protection: control engine power and fan modules all support 1+1 redundancy. All redundant components are hot-swappable to maximize reliability and availability. Hot patch technology is also supported to enable online upgrade. Support GR for OSPF/IS-IS/BGP and BFD for VRRP/OSPF/BGP4/ISIS/ISISv6/static routing to enable the fast fault detection mechanism of different protocols. The feature minimizes the fault detection time to less than 50ms.

### Excellent Energy Efficiency

The internal system is designed for low voltage power supply with high-efficiency modular power to form a more efficient power supply system. The multi-core CPU supports dynamic power management with all Ethernet copper ports implements the Energy-Efficient Ethernet (EEE) standard to save power under light load.

The smart fan supports speed modulations with precise temperature control, energy saving and noise control. The device can function at high temperature for a long period of time or in harsh environment. The DGS-6650 Switch thereby helps clients to maximize savings on air conditioning.

Technical Specifications	
Hardware (Chassis)	DGS-6650
Module Slots	• 5 (2 for control engines)
Modular Power Slots	• 2 (for system power)
Max. Switching Capacity	• 22.25Tbps/88.62Tbps
Max. Packet Forwarding Rate	• 215Mpps
Physical	
Dimensions (D x W x H)	• 442mm x 451mm x 175mm
Rack Height	• 4RU
Temperature	• Operating Temperature: 0 to 50 °C (32 to 122 °F) • Storage Temperature: -40 to 70 °C (-40 to 158 °F)
Humidity	• Operating Relative Humidity: 10% to 90% (non-condensing) • Storage Relative Humidity: 5% to 95%
Operating Altitude	• Up to 5,000m

Software Features			
L2 Features	Jumbo Frame IEEE802.1Q STP, RSTP, MSTP	• Super VLAN • GVRP • QinQ	• LLDP • ERPS G.8032
IPv4	Static Route RIP OSPF	• IS-IS • BGP4 • VRRP	• ECMP (Equal-cost multi-path routing) • PBR (Policy-based routing) • GRE tunnel
IPv6	Static Route OSPFv3 BGP4+ IS-ISv6	• MLDv1/v2 • VRRPv3 • ECMP (Equal-cost multi-path routing) • VRRPv3 • PBR (Policy-based routing)	• Manual tunnel • Auto tunnel • ISATAP tunnel • GRE tunnel
ACL	Standard/Extended/Expert ACL; ACL 80; IPv6 ACL		
QoS	IEEE 802.1p Queue scheduling mechanisms • SP, WRR, DRR, WFQ, SP+WFQ, SP+WRR, SP+DRR	• RED/WRED	• Input/output port-based speed limit
Port Mirroring	Many-to-one mirroring One-to-many mirroring	• Flow-based mirroring • SPAN	• RSPAN • VLAN mirroring
Reliability	Control engine, Power and FAN support N+1 redundancy and hot-swappable	• ISSU • GR for OSPF/IS-IS/BGP	• BFD for VRRP/OSPF/BGP4/ISIS/ISISv6/static routing • Hot patch and online patch upgrade
Security	NFPP (Network Foundation Protection Policy) CPP (CPU Protection) Port Security IP Source Guard	• IEEE802.1x • uRPF • Portal authentication • RADIUS and TACACS+ user login authentication	• Account privileges and password security policy • Support SSHv2 to provide a secure and encrypted channel for user login
Management Features	SNMPv1/v2c/v3, CLI (Telnet/Console) RMON SSH2.0	• Syslog • NTP • Fault alarm and self-recovery	• Traceroute • sFlow • FTP/TFTP
SDN	OpenFlow v1.3		

## DGS-6650 Series Managed L3 Chassis Switch

Ordering Information	
DGS-6650-SK	5-slot Chassis (With fan module, without power supply module)
DGS-6650-CM	Control Engine
DGS-6650-PWR	300W power module
DGS-6650-PWR-POE	1600W power module for PoE
DGS-6650-FAN	Fan module, contains 2 fan units and 1 fan control board, support side-to-rear airflow
Optional I/O Modules	
DGS-6650-48GT4XS	48-port 10/100/1000BASE-T + 4-port 10G SFP+ module
DGS-6650-24GT24S4XS	24-port 10/100/1000BASE-T + 24-port GE SFP + 4-port 10G SFP+ module
DGS-6650-32XS	32-port 10G SFP+ module
DGS-6650-24XT4Q	24-port 10GBASE-T+ 4-port 40G QSFP+ module
DGS-6650-4QXS	4-port 40G QSFP+ module
DGS-6650-48GTP4XS	48-port 10/100/1000BASE-T PoE + 4-port 10G SFP+ module
Optional Direct Attach Cables	
DEM-CB100S	1m 10G SFP+ Direct Attach Cable
DEM-CB300S	3m 10G SFP+ Direct Attach Cable
DEM-CB700S	7m 10G SFP+ Direct Attach Cable
DEM-CB100QXS	1m 40G QSFP+ Direct Attach Cable
DEM-CB100QXS-4XS	1m 40G QSFP+ to 4*10G SFP+ Direct Attach Cable
DEM-CB300QXS	3m 40G QSFP+ Direct Attach Cable
Optional Redundant Power Supplies	
DPS-500A	AC Redundant Power Supply
DPS-500DC	DC Redundant Power Supply
DPS-700	AC Redundant Power Supply for PoE Models
Optional SFP Transceivers	
DEM-712	1000BASE-T Copper SFP Transceiver
DEM-310GT	1000BASE-LX, Single-mode, 10 km
DEM-311GT	1000BASE-SX, Multi-mode, 500 m
DEM-312GT2	1000BASE-SX, Multi-mode, 2 km
DEM-314GT	1000BASE-LHX, Single-mode, 50 km
DEM-315GT	1000BASE-ZX, Single-mode, 80 km
Optional 10G SFP+ Transceivers	
DEM-431XT	10GBASE-SR Multi-mode, 300m
DEM-432XT	10GBASE-LR Single-mode, 10km
DEM-433XT	10GBASE-ER Single-mode, 40km
DEM-434XT	10GBASE-ZR Single-mode, 80km
DEM-436XT-BXD	10GBASE-LR Single-mode, 20km (TX-1330/RX-1270 nm)
DEM-436XT-BXU	10GBASE-LR Single-mode, 20km (TX-1270/RX-1310 nm)
Optional 40G QSFP+ Transceivers	
DEM-QX01Q-SR4	40GBASE-SR4 Multi-mode, 150m
DEM-QX10Q-LR4	40GBASE-LR4 Single-mode, 10km
Optional WDM SFP Transceivers	
DEM-330T	1000BASE-LX, Wavelength Tx:1550 nm Rx:1310 nm, Single-mode, 10 km
DEM-330R	1000BASE-LX, Wavelength Tx:1310 nm Rx:1550 nm, Single-mode, 10 km
DEM-331T	1000BASE-LX, Wavelength Tx:1550 nm Rx:1310 nm, Single-mode, 40 km
DEM-331R	1000BASE-LX, Wavelength Tx:1310nm Rx:1550 nm, Single-mode, 40 km

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