Business and Enterprise Solutions

DES-6500

Layer 2/3/4 Chassis Switch
For Enterprise Network Connections

The DES-6500 is a Layer 3 backbone chassis-based Gigabit switch that provides everything a business needs for a switched network. This 9-slot chassis offers a high switch fabric capacity of 160Gbps supporting wire speed L2/L3 packet switching in dynamic or static environments. Some of the features include a high port density, with L2/L3/L4 Class of Service (CoS) and Access Control Lists (ACL), Multiple link aggregation, fault tolerance, a hot-swappable CPU module/line card and redundant power supply, and traffic monitoring. Designed for performance and flexibility, this chassis offers you the price/performance ratio necessary to deploy a cost-effective enterprise backbone network.

High Scalability, Availability, & Security
With 8 line card slots and a wide range of user-selectable port types and speeds, the switch provides easy scalable expansion as your network needs grow. This switch provides redundancy of power, link aggregation, STP, and VRRP, which prevents single point of failure, minimizes possible network downtime, and increases the network's availability. Line card hot-swappable capability makes it easy to swap defective line cards, shorten the network restoration time, and simplify troubleshooting. Increase security by taking advantage of 802.1x, RADIUS authentication, TACACS+, SSL, and SSH network security features. The hardware and software features of the DES-6500 all work together to allow customers to build affordable, high performance, high availability, and highly secure networks.

Up to 16 10Gigabit ports, 96 Gigabit Ports, 192 Fast Ethernet Ports, 142 Mpps Forwarding Rate
You can configure the switch with up to 96 Gigabit ports, 192 twisted-pair Fast Ethernet ports or a combination of both. Copper and fiber Gigabit are supported. Built-in wire-speed switch fabric provides hardware-based packet filtering and forwarding, while packet routing is performed by on-board ASICs, which are many times faster than traditional CPU-based routers.

Network Management
The DES-6500 supports a variety of network management options including: console CLI, Telnet configuration, Web-based and SNMP v1, v2, v3 management, RMON monitoring, TFTP firmware upgrade, TFTP configuration download/upload, Port Mirroring for troubleshooting, and BootP/DHCP IP assignment. It also supports advanced traffic management options including: 802.3x, Bandwidth Control, Broadcast Storm Control, Traffic Segmentation and IGMP snooping. Live CPU utilization monitoring and port descriptions are available to help troubleshoot when a performance degradation occurs.

Advanced Enterprise Features
The DES-6500 supports IP (RIP, OSPF) and IGMP, DVMRP, and PIM multicasting for logical network segmentation and traffic control. It also supports a complete set of Spanning Tree Protocols (STP), Rapid Spanning Tree Protocol (RSTP), and Multiple Spanning Tree Protocol for Layer 2 redundancy.

1 Future Firmware Release

FEATURES

High-Performance Switching:
- 160Gbps Switching Capacity
- 9 Slot Modular Chassis
- 1 CPU & 8 Line Card Slot
- Up to 142 Mpps Forwarding Rate
- Up to 16 10Gigabit Ethernet Ports
- Up to 96 Gigabit Ethernet Ports
- Up to 192 Fast Ethernet Ports
- 3K IP Address
- 16K MAC Address
- 4K VLANs (max.)
- 8 Priority Queues Support
- 32 Trunk Group, 8 Port/Group
- Hot-Swappable Line Cards, PS
- Redundant Power Supply
- 9K Jumbo Frames Support
- Telnet/Console CLI
- Web/SNMP v1,v2c,v3/RMON I
- CPU Utilization Monitoring
- TFTP Client
- Web GUI Traffic Monitoring
- SYSLOG Support

Advanced Features:
- RIP v1/v2 & OSPF
- IGMP v2/DVMRP/PIM-DM
- VRRP
- TACACS+/SSL/SSH/RADIUS
- L2/L3/L4 CoS/ACL
- 802.1d/802.1w, 802.1s
- 802.1Q, GARP/GVRP Support
- DHCP/BootP/DNS Client
- DHCP/BootP/DNS Relay
- Port Mirroring & Security
- 802.1x port-based, MAC-based
- Bandwidth Control
- Port Description
- SNTP
- Up to 100 ACL's Per Port

Product Data Sheet

D-Link®
Building Networks for People

Hardware

Port Standard/Function Support
Fully Compliant with IEEE 802.3/802.3u/802.3ab/802.3z Standard
ANSI/IEEE 802.3 NWay auto-negotiation
MDI/MDI-X Auto-detection
IEEE 802.3x Flow Control in Full-duplex, Back Pressure in Half-duplex

DES-6500 Chassis System
Number of User-configurable Slots: 8
2 Redundant Power Supply Bays
Backplane Switch Fabric Bandwidth: 160Gbps
Up to 96 Gigabit Ethernet Ports
Up to 192 Fast Ethernet Ports
3k IP Address, 16K MAC address, 4K VLAN (max.)
8 Hardware Priority Queues
32 Trunking Group, 8 port/Group
RAM Buffer: 128MB per Line Card, 256MB per CPU card

DES-6502 CPU/Fabric Switching Module (Shipped with DES-6500)
RS-232 Console Port (DB9) : DCE, 115200, N, 8, 1
Reset, Alarm Off Buttons
System, Power LED
160 Gbps Switching Capacity
Up to 142 Mpps Forwarding Rate Support
256MB SDRAM
512KB for Boot code and 16 MB for Runtime code

DES-6504 12 port 100BASE-FX MMF LC Module
Fully compliant with IEEE802.3u 100BASE-FX
IEEE 802.3x compliant Flow Control support for Full-duplex
Supports (SFF) LC type connections
Cable distances up to 2km in full duplex on Multi-Mode Fiber

DES-6506 24-port RJ-21 to RJ-45 Patch Panel
Patch panel support 2 RJ-21 ports to 24-port RJ-45 10/100 BASE-TX Interface
Compatible with the DES-6510 RJ-21 Telco Module
Use in conjunction with DES-6510 module
supports 2 RJ-21/Telco 50 connectors
1U high

DES-6507 12-port 10/100/1000Base-T + 2SFP Combo Module
Fully Compliant with IEEE 802.3/802.3u/802.3ab/802.3z Standard
ANSI/IEEE 802.3 NWay auto-negotiation
MDI/MDI-X Auto-detection
IEEE 802.3x Flow Control in Full-duplex
Copper Cables:
10BASE-T:
2-pair UTP CAT 3,4, 5 (100m max.)
EIA/TIA-568 100-ohm STP (100m max.)
100BASE-TX/1000BASE-T:
2-pair or 4 pair UTP CAT 5 or Better (100m max.)
EIA/TIA-568 100-ohm STP (100m max.)
Fiber Cables: 50, 62.5/125 Micron Multimode Fiber, 9 Micron Singlemode Fiber
LED report (per port):
Link/Act

DES-6508 16-port 10BASE-T/100BASE-TX RJ-45 Fast Ethernet Switch module
Fully compliant with IEEE802.3 10BASE-T, IEEE802.3u 100BASE-TX
All 10/100Mbps ports support auto-negotiation
Back pressure Flow Control support for Half-duplex mode
IEEE 802.3x compliant Flow Control support for Full-duplex

DES-6509 12-port 1000Base-X SFP Fiber Module
Fully Compliant with IEEE 802.3z Standard
IEEE 802.3x Flow Control in Full-duplex
Fiber Cables: 50, 62.5/125 Micron Multimode Fiber, 9 Micron Singlemode Fiber
LED report (per port):
Link/Act

DES-6510 24 Port 10/100Mbps RJ-21 Telco 50 Module
2 RJ-21, each support 12-port 10BASE-T/100BASE-TX ports
Fully compliant with IEEE802.3 10BASE-T, IEEE802.3u 100BASE-TX
All 10/100Mbps ports support auto-negotiation
Back pressure Flow Control support for Half-duplex mode
IEEE 802.3x compliant Flow Control support for Full-duplex

DES-6511 Power Supply
Full Redundant Feature Design
Hot-swappable Power Source
Power Management Function Enabled
2 Fans Included
Removable Handle Design
Input: 90 ~ 264 VAC, 47 ~ 63 Hz
Output: 3.3V:4A ~ 80 A; 12V: 0.1A ~2A

DES-6512 2 Port 10G XFP module for DES-6500 chassis
IEEE 802.3ae compliance
Support Full-Duplex operation only
Support XFP MSA compliant transceivers
256MB SDRAM
Flash: 512KB for boot code, 16MB for runtime code
LED indicators

Network Cable
10Base-T:
2-pair UTP CAT 3,4, 5
EIA/TIA-568 100-ohm STP

100Base-TX/1000Base-T:
2-pair or 4 pair UTP CAT 5 or Better
EIA/TIA-568 100-ohm STP

1000Base-SX:
50, 62.5/125 Micron Multimode Fiber

1000Base-LX:
50, 62.5/125 Micron Multimode Fiber
9 Micron Singlemode Fiber

Software

VLAN (Layer 2)
IEEE 802.1Q VLAN Tagging, Up to 255 Dynamic & 4K Static VLANs
Multiple IPs Per VLAN, GARP/GVRP, IGMP Snooping

Spanning Tree (Layer 2)
IEEE 802.1d Bridging STP, IEEE 802.1w Rapid Spanning Tree,
IEEE 802.1s Multiple Spanning Tree Group

IP Routing (Layer 3)
IP Fragmentation Support, Floating Static Route, RIP-v1&v2, OSPF
IGMP v2, DVMRP, PIM-DM, PIM-SM[1], VRRP, 802.1v, (IPv6), Static Routing - 128
entries, 256 IP interface addresses

Traffic Classification (CoS)
IEEE 802.1p, MAC SA/DA Address, IP TOS and DSCP bits
IP Destination Addresses, TCP/UDP Destination Port Number, IP v6 VLAN
Number of Priority Queues: 8

Access Control/Security
IEEE 802.1x Port-based Access Control, Cisco like Port Security, TACACS+/
SSL/SSH2/RADIUS, IEEE 802.1x MAC-based Access Control

Access Control List (ACL)
MAC Address, VLAN, IP Address, Protocol Type, 802.1p, DSCP,
TCP/UDP Port Number, Traffic to the Switch Management Interface[1], up to 100
ACL's per port

Link Aggregation
802.3ad LACP, 32 Trunking Group, 8 Port/Group

Configuration
DHCP/BootP/DNS client, DHCP/BootP/DNS Relay
Telnet Server, DHCP Auto Configuration, supports "show config" command

Management Support
Web-based Management, Console & Telnet (CLI), RMON (statistic, history, alarms, events)
SNMP v1/v2/ v3, TFTP Client, SYSLOG Support, Dual Image[1],
Web GUI Traffic Monitoring, Web MAC Address Browsing, Port Description,
3-level trigger logging, D-Link SIM, CPU utilization monitoring, supports 255
static ARP entries

MIB
MIB II (RFC 1213), Bridge (RFC 1493), RMON (RFC1757), RMON2-MIB
(RFC2021)
802.1p (RFC 2674), 802.1Q VLAN MIB (RFC 2674), Ethernet-like (RFC 1643)
IGMP MIB (RFC 2833), IPMROUTE-STD-MIB (RFC 2932), IGMP-STD-MIB
(RFC 2933)
IF- MIB (RFC 2233), RIP (RFC 1724), OSPF (RFC 1850), PIM-MIB (RFC
2934), DVMRP
IP-FORWARD-MIB (RFC 2096), D-Link Private MIB (proprietary), dlkSysLog-MIB

Port Configuration & Monitoring
Auto-negotiation, Port Mirroring, Broadcast Storm Control,
9K Jumbo Frame Support, HOL Prevention
Traffic Segmentation, SNTP, CPU Interface filtiring

Electrical & Emissions Summary

EMI Certification	FCC Class A, VCCI Class A, CE Class A, C-Tick Class A
Power Input	90 - 264 VAC, 47 – 63 Hz (per power supply)
Power Output (per power supply unit)	3.3VDC; 4 - 80A max, 12VDC; 0.1 - 2A max, 296W Max. Power Consumption

Physical Specifications

Dimensions	440 (W) x 294 (D) x 356 (H) mm (excluding rubber feet) (17.32 x 11.57 x 14.01 inches)
	Standard 19-inch Rack-mount Width, 9 U Height
Weight	13.16kg (23.20lb.) (includes Chassis, CPU module, and 1 power supply)
Operating Temperature	0° – 40°C (32° –104°F)
Storage Temperature	-25° – 55°C (-13° –131°F)
Humidity	5% - 95% RH non-condensing

Warranty and Support Information

Warranty	Limited Lifetime Warranty
Support	Free Technical Support

Ordering Information

Part Number	Description
DES-6500	Base Chassis Unit w/ DES-6501, DES-6502, & DES-6511
DES-6504	12 Port 100Base-FX MMF LC Module
DES-6506	24 Port RJ21 to RJ45 Patch Panel (to be used in conjunction with DES-6510)
DES-6507	12 port 1000Base-T + 2 SFP Combo Module
DES-6508	16 Port 10/100Mbps RJ-45 Ethernet Module
DES-6509	12 Port 1000Base-X SFP Fiber Module
DES-6510	24 Port 10/100Mbps RJ21 Telco 50 Module (to be used in conjunction with DES-6506)
DES-6511	Redundant Power Supply
DES-6512	2 Port 10G XFP module for DES-6500 chassis
DEM-310GT	1000Base-LX, SFP 50, 62.5/125 Micron Multimode (550m max.) or Singlemode (10km max.)
DEM-311GT	1000Base-SX, SFP 50/125 Micron Multimode (550m max.)
DEM-312GT2	1000BASE-SX+ SFP/mini-GBIC Up to 2km (Multimode)
DEM-314GT	1000Base-LH, SFP 9/125 Micron Singlemode (50Km max.)
DEM-315GT	1000Base-ZX, SFP 9/125 Micron Singlemode (80Km max.)
DS-510P	D-View 5.1 Professional SNMP Network Management System