



**Business
& Enterprise**

DES-6500

Layer 3 Chassis Switch

For Departmental/Enterprise Network Connections

The DES-6500 is a core Layer 3 chassis-based Gigabit switch that provides everything a business needs for a switched network. This 9-slot chassis offers a high port density, comprehensive network media support with multiple link aggregation, a high switch fabric capacity of 160Gbps supporting wire-speed L2/L3 packet switching, fault tolerance with line card hot-swap and redundant power backup capabilities, Quality of Service (QoS)/Class of Service (Cos), complete user access security, traffic monitoring and comprehensive network management. Designed for performance and flexibility, this chassis offers you the edge device router simplicity and the price/performance ratio necessary to deploy a cost-effective enterprise, backbone and campus network.

Wire-speed IP Packet Routing

Using standards-based routing, the DES-6500 provides instant support for Windows, Unix and Internet environments. Built-in wire-speed non-blocking switch fabric provides hardware-based packet filtering/forwarding. Packet routing is performed by on-board ASICs, which is many times faster than traditional CPU-based routers.

Up to 96 Gigabit Ports, 192 Ethernet Ports

You can configure the switch with up to 96 Gigabit ports, 192 twisted-pair Ethernet ports, or 96 fiber Ethernet ports, or a combination of these. Copper Gigabit and fiber Gigabit (SX, LX and SFP included) are supported. This comprehensive network media support allows you to flexibly configure the chassis for workstations, departmental server and backbone/campus connections.

Scalable Expansion

With 8 line card slots and a wide range of user-selectable port types, the DES-6500 allows you to easily add modules to increase port density as your need grows, without changing your chassis.

High Availability

The hardware and software features of the DES-6500 work together to allow customers to build affordable, high performance, high availability networks. Line card hot-swap capability makes it easy to add or remove line cards to simplify troubleshooting and replace sparing. The DES-6500 also supports redundant power option to maximize Network uptime. Other features include support for RIP v.1,

V.2, OSPF, DVMRP, 802.3ad Link Aggregation, 802.1d Spanning Tree, and 802.1w Rapid Spanning Tree for increased network reliability and availability.

Network Management

The DES-6500 supports a variety of network management options including: console CLI, Telnet configuration, web-based and SNMP v.1, v.2c, v.3 management, RMON monitoring, TFTP firmware upgrade, Port Mirroring for troubleshooting, BootP and DHCP IP assignment. The DES-6500 also supports a variety of advanced traffic management options including: 802.1x, Bandwidth Control, Broadcast Rate Limiting, and support for IGMP v.1, v.2 snooping.

Advanced Enterprise Features

The DES-6500 implements a robust and consistent set of QoS/CoS, VLAN, and Security features. It provides a complete set of network access management, plus multi-layer (L2, L3, L4) Quality of Service support, advanced Access Control Lists (ACL) support, and enhanced TACACS+ and RADIUS authentication.

The DES-6500 supports 8 priority queues for 802.1p/TOS/DiffServ, with classification and marking based on MAC SA/DA, IP SA/DA, and/or TCP/UDP port numbers. Security features include: 802.1x (port based authentication) 802.1x (MAC based authentication), Access Control Lists based on MAC address, IP address, and/or TCP/UDP port numbers. The DES-6500 also has extensive support for GARP/GVRP, 802.1q, and 802.1Q VLANs for up to 4K static groups per device.

Key Features

- 8 open slots for installation of up to 96 Gigabit ports or 192 Ethernet ports
- 160Gbps backplane bandwidth
- IP routing supporting RIP-1, RIP-2, OSPF routing protocols, DVMRP, PIM Dense mode
- Complete network access management solution
- Multi-layer (L2, L3, L4) Quality of Service
- Advanced Access Control Lists (ACL), enhanced TACACS+ and RADIUS authentication
- Port trunks supporting 802.3ad LACP Link Aggregation
- IGMP snooping for multimedia applications
- CLI, Web-based and SNMP management, RMON monitoring
- Optional redundant power support

Technical Specifications

Hardware

Chassis

- Number of slots: 9
- Number of user-configurable slots: 8
- 2 redundant power supply bays
- Backplane switch fabric bandwidth: 160Gbps

Port Standard/Function Support

- IEEE 802.3 10BASE-T/802.3u 100BASE-TX/802.3ab 1000BASE-T/802.3z 1000BASE-SX/LX
- ANSI/IEEE 802.3 NWay auto-negotiation
- IEEE 802.3x Flow Control
- Auto MDI/MDIX
- Port mirroring

SFP Support

- IEEE 802.3z 1000BASE-LX (DEM-310GT transceiver)
- IEEE 802.3z 1000BASE-SX (DEM-311GT transceiver)
- IEEE 802.3z 1000BASE-LH (DEM-314GT transceiver)
- IEEE 802.3z 1000BASE-ZX (DEM-315GT transceiver)

Software

IP Routing

- IP v4 support
- IP Fragmentation support
- IP multi-netting
- Routing protocols supported:
 - Static routing
 - RIP-1, RIP-2
 - OSPF v.2

VLAN

- IEEE 802.1Q Tagged VLAN
- GARP/GVRP
- Number of VLANs: 4K static VLANs (max.)
- Multiple IPs per VLAN *

* Function available in future firmware upgrade

Priority Queues (CoS)

- Standard: IEEE 802.1p
- Number of queues: 8

Traffic Classification (CoS)

Can be based on user-definable application types:

- TOS
- Diffserv (DSCP)
- Port-based
- MAC address
- IP address
- TCP/UDP port number

Network Access Management

- Port security features
- 802.1x user authentication
- RADIUS client
- Multi-layer ACL based on:
 - Port number
 - TOS
 - Diffserv (DSCP)
 - MAC address
 - IP address
 - User-definable applications
 - User-definable packet content

Spanning Tree Protocol

- 802.1D Spanning Tree compatible
- 802.1w Rapid Spanning Tree
- 802.1s Multiple Spanning Tree *

* Function available in future firmware upgrade

IP Multicast

- IGMP v.2 - DVMRP
- PIM Dense mode
- PIM Sparse mode *
- VRRP *

* Function supported in future firmware upgrade

Port Trunk

- Number of ports per trunk: 8 (max.)
- Number of trunks: 32 (max.)
- Operation mode: load sharing
- 802.3ad compatible Link Aggregation (LACP)

Performance

Switch Fabric

160Gbps

Transmission Method

Store-and-forward

IP Address Table

3 K host entries

MAC Address Table

16K entries per device

MAC Address Learning

- Dynamic entries: automatic update
- Static entries: user-defined

Packet Filtering/Forwarding Rates (half duplex)

1,488,100 pps per port (max.)

Jumbo Frame

9,216 bytes (max.)

Configuration & Management

Management Support

- SNMP v.1, v.2c, v.3
- Web-based management
- Web GUI traffic monitoring
- Web-based MAC address browsing
- CLI (command line interface)
- RMON monitoring
- Telnet server (up to 8 sessions)
- SYSLOG
- ACL
- DHCP/Bootp relay
- DNS relay

Routing Table

ARP table editing supports Delete of individual IP address learned by dynamic learning

MIBs

- MIB-II (RFC 1213)
- Bridge MIB (RFC 1493)
- RMON MIB (RFC 1757)
- 802.1p Priority Queues (RFC 2674)
- 802.1Q VLAN MIB (RFC 2674)
- IGMP MIB (RFC 2833)
- If MIB (RFC 2233)
- Ethernet-like MIB (RFC 1643)
- RIP MIB (RFC 1724)
- OSPF MIB (RFC 1850)
- CIDR MIB (RFC 2096)
- D-Link enterprise MIB

DES-6500

Technical Specifications

Chassis Switch

RMON Groups

1, 2, 3, 9 (Alarm, Statistics, History, Event)

IP Number Self-identification

Through DHCP client, Bootp client

Firmware Upgrade

TFTP

Console Port

DB-9 RS-232 DCE

Physical & Environmental

Power Input (per power supply unit)

Input: 90 to 264 VAC, 47 to 63 Hz

Output: 3.3VDC, 4 to 80A; 12VDC, 0.1 to 2A

Redundant Power Backup Support

Up to 2 power supply unit installable in chassis

Ventilation

80 x 80 mm DC fans x 4

Chassis Dimensions

440 x 294 x 356 mm (including rubber feet)

19-inch rack-mount width

Weight

13.16kg (includes chassis, backplane, management module, 1 power supply)

Operating Temperature

0° to 40°C

Storage Temperature

-25° to 55°C

Humidity

5% to 95% non-condensing

Emission (EMI)

- FCC Class A

- CE Class A

- VCCI Class A

- C-Tick

Safety

CSA International



Ordering Information

L3 Switch Chassis

DES-6500 Basic configuration (includes chassis, backplane, management module, 1 power supply)

Optional Modules

Module	Port	Connector	Cable Type	Max. (Cable) distance
* DES-6504	12 100BASE-FX ports	SFF (LC type)	Multi-mode fiber	2 km
* DES-6505	8 100BASE-SX ports	SC	Multi-mode fiber	550 m
DES-6507	12 10/100/1000BASE-T ports, 2 Combo SFP *	RJ-45 -	Cat. 5 twisted-pair Fiber	100 m -
* DES-6508	16 10/100BASE-TX ports	RJ-45	Cat. 3, 4, 5 twisted-pair	100 m
DES-6509	12 SFP	-	Fiber	-
* DES-6510	24 10/100BASE-TX ports	RJ-21	Cat. 3, 4, 5 twisted-pair	100 m
*DES-6511	Redundant power supply (60x60mm DC fansx2)			
* DES-6506	Patch panel for RJ-21 ports (DES-6510)			

* Available in near future

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D-Link Corp.

TEL: 1-714-885-6000

TEL: 1-905-8295033

TEL: 44-20-8731-5555

TEL: 49-6196-77990

TEL: 33-1-30238688

TEL: 31-10-282-1445

TEL: 39-2-2900-0676

TEL: 34-93-4090770

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FAX: 1-866-743-4905

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FAX: 31-10-282-1331

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FAX: 34-93-4910795

FAX: 46-(0)8564-61901

FAX: 47-22-309085

FAX: 45-43-424347

FAX: 358-9-2707-5081

FAX: 65-6774-6322

FAX: 61-2-8899-1868

FAX: 81-3-5434-9868

FAX: 86-10-8518-2250

FAX: 91-022-652-8914

FAX: 9714-8834394

FAX: 90-212-335-2500

FAX: 202-415-6704

FAX: 972-9-9715601

FAX: 56-2-232-0923

FAX: 55-11-55039321

FAX: 27(0)1266-52186

FAX: 7-095-744-0099#350

FAX: 886-2-2910-1515

FAX: 886-2-2914-6299



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