

# Chassis Switch

## For Enterprise Network Connection

- 9-Slot Modular Layer 3 Switch Chassis
- Configurable With High Density Gigabit Ports
- 10-Gigabit Uplink Modules
- 160Gbps Switch Fabric
- Advanced Software Features

### FEATURES

#### Modular Flexibility

- 9-Slot Modular Chassis
- 1 CPU & 8 Line Card Slots
- Up to 16 10-Gigabit Ports
- Up to 96 Gigabit Ports
- Up to 192 10/100Mbps Ethernet Ports
- Up to 96 Fiber Ethernet Ports
- Redundant Power Supply

#### High Performance Switching

- 160Gbps Switch Fabric
- 142Mpps Forwarding Rate
- 32 Trunk Groups, 8 Ports Per Group
- 9216Bytes Jumbo Frames
- 3K IP Addresses
- 16K MAC Addresses
- 4K VLANs
- 8 Priority Queues

#### Advanced Features

- RIP v.1/v.2, OSPF
- IGMP v.3, DVMRP, PIM-DM
- VRRP
- RADIUS, TACACS+, SSL/SSH
- L2/L3/L4 CoS/ACL
- Up to 100 ACL Per Port
- 802.1d/802.1w/802.1s
- 802.1Q, GARP/GVRP
- Bandwidth Control
- Broadcast/Multicast Storm Control
- Safeguard Engine
- STP Loopback Detection

The DES-6500 L3 chassis switch brings configuration flexibility and price/performance ratio necessary for deployment of a cost-effective enterprise, backbone and campus network. This chassis provides a high density of Gigabit ports, 10-Gigabit support, high switch fabric capacity, fault tolerance, Quality of Service (QoS), and network security critical for enterprise applications.

*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.

*High Gigabit/10-Gigabit Port Density.* Users can configure this chassis with up to 96 Gigabit ports, 16 10-Gigabit ports, 192 10/100Mbps Ethernet ports, 96 fiber Ethernet ports, or a combination of these. With 8 line card slots and a wide range of selectable port types, users can easily add and change modules to suit their requirements.

*Security, Performance & Availability.* The DES-6500 series provides extensive VLAN support including GARP/GVRP, 802.1Q and asymmetric 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. With Multi-layer L2/L3/L4 bandwidth control and D-Link Safeguard Engine, DES-6500 series can set limits to traffic flows from the edge of the network while automatically prevents broadcast packets and bulk traffic generated by Internet DoS-related activities from utilizing the switch's CPU resources. This prevention of unnecessary and harmful traffic can increase the overall network serviceability, reliability and availability of the stack.

*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.

*Comprehensive Management.* The DES-6500 supports a variety of network management options including console CLI, Telnet configuration, web-based and SNMP management, RMON monitoring and Single IP Management. The DES-6500 also supports a variety of advanced traffic management options including bandwidth control and broadcast/multicast storm control.



**DES-6500**

## Technical Specifications

### Hardware

#### Port Standard/Function Support

- Fully compliant with IEEE 802.3/802.3u/802.3ab/802.3z 802.3ae standards
- 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
- Back plane switch fabric bandwidth: 160Gbps
- Up to 16 10-Gigabit Ports
- Up to 96 Gigabit Ports
- Up to 192 10/100Mbps Ethernet Ports
- Up to 96 Fiber Ethernet Ports
- Up to 3K IP address table, up to 16K MAC address table, 4K VLAN (max.)
- 8 Priority Queues
- 32 Trunking Group, 8 ports per group
- RAM buffer: 128MB per line card, 256MB for CPU card

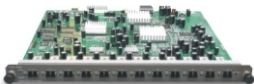
### DES-6502 CPU/Fabric Switching Module

(Shipped with DES-6500)



- RS-232 console port
- Reset, alarm off buttons
- System, Power LEDs
- 160Gbps switching capacity
- Up to 142 Mpps forwarding rate
- 256MB SDRAM
- 512KB for boot codes and 16MB for runtime codes

### DES-6504 12-Port 100BASE-FX MMF LC Module



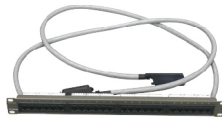
- Fully compliant with IEEE 802.3u 100BASE-FX standard
- IEEE 802.3x compliant flow control support for full-duplex
- Supports (SFF) LC type connections
- Cable distances up to 2km in full duplex on multi-mode fiber

### DES-6505 8-Port 1000BASE-SX Fiber SC Module



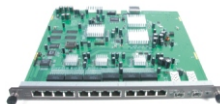
- Fully compliant with IEEE 802.3z standard
- 802.3x flow control in full-duplex
- Fiber cables: 50, 62.5/125-micron multi-mode fiber
- LED report (per port): Link/Act

### DES-6506 24-port RJ-21 to RJ-45 Patch Panel



- Patch panel supports 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

### DES-6507 12-Port 10/100/1000BASE-T + 2 SFP Combo Module



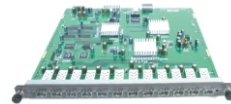
- Fully compliant with IEEE 802.3/802.3u/802.3ab/802.3z standards
- ANSI/IEEE 802.3 NWay auto-negotiation
- MDI/MDI-X auto-detection
- IEEE 802.3x flow control in full-duplex
- 10BASE-T copper cable: 2-pair UTP Cat. 3, 4, 5 cable (100m max) EIA/TIA-568 100-ohm STP cable (100m max.)
- 100BASE-TX/1000BASE-T copper cable: 2-pair or 4 pair UTP CAT 5 or better (100m max.) EIA/TIA-568 100-ohm STP cable (100m max.)
- Fiber cables: 50, 62.5/125-micron multi-mode fiber, 9-micron single-mode fiber
- LED report (per port): Link/Act

### DES-6508 16-Port 10/100Mbps RJ-45 Module



- Fully compliant with IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX standards
- All 10/100Mbps ports support auto-negotiation
- Back pressure support for half-duplex mode
- 802.3x compliant flow control support for full-duplex

### DES-6509 12-Slot SFP Module



- Fully compliant with IEEE 802.3z standard
- 802.3x flow control in full-duplex
- Fiber cables: 50, 62.5/125-micron multi-mode fiber, 9-micron single-mode fiber
- LED report (per port): Link/Act

### DES-6510 24 Port 10/100Mbps RJ-21 Telco 50 Module



- 2 RJ-21, each supports 12-port 10BASE-T/100BASE-TX ports
- Fully compliant with IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX standards
- All 10/100Mbps ports support auto-negotiation
- Back pressure for half-duplex mode
- 802.3x 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 to 264 VAC, 47 to 63 Hz
- Output: 3.4V: 4A to 80 A; 12V: 0.1A to 2A

### DES-6512 2-Slot 10G XFP Module



- Compliant with IEEE 802.3ae standard
- Supports full-duplex operation only
- Supports XFP MSA-compliant transceivers
- 256MB SDRAM
- Flash: 512KB for boot codes, 16MB for runtime codes
- LED indicators

## Software Functions

### L2 Features

- IGMP snooping
- Spanning Tree: 802.1D STP, 802.1W RSTP, 802.1S MSTP
- STP Loopback Detection
- 802.3ad Link Aggregation up to 32 groups
- Back Pressure Flow Control
- Port mirroring: one-to-one, multiple-to-one
- Trunking/mirroring across stack

### VLAN

- 802.1Q
- 4K VLAN groups (4K static VLANs, 255 dynamic VLANs)
- GVRP/GARP
- 802.1V

### L3 Features

- 128 IP v.4 Static Routing
- RIP v.1/v.2
- OSPF
- VRRP
- Floating Static Route
- Number of IP interfaces: 256 per system
- Multiple IP per VLAN (max. 2)
- IP v.4 routing table: max. 2K entries
- Multicast forwarding table: max. 256 entries
- IGMP v.1, v.2, v.3

### QoS

- Bandwidth control: per port granularity of 64Kbit per second
- 802.1p support
- 8 queues per port
- Queue handling methods: WRR, Strict
- CoS based on:
  - Switch port
  - MAC address

- 802.1p priority
- VLAN
- Protocol type
- TOS
- DSCP
- IP v.4/v.6 address
- IP v.6 traffic class
- IP v.6 flow label
- TCP/UDP port

### ACL (Access Control List)

- Maximum 9600 rules based on:
  - Switch port
  - MAC address
  - 802.1p priority
  - VLAN
  - Protocol type
  - TOS
  - DSCP
  - IP address
  - IP v.4/v.6 address
  - IP v.6 traffic class
  - IP v.6 flow label
  - TCP/UDP port
  - TCP/UDP payload
- CPU interface filtering

### Security

- RADIUS/TACACS/TACACS+
- SSH v.2
- SSL v.1
- Port security
- 802.1x port-based/MAC-based access control
- Broadcast storm control
- Multicast storm control
- Traffic segmentation
- D-Link Safeguard Engine

### Management

- D-Link Single IP Management v.1.0
- Web-based GUI
- CLI
- Web GUI traffic monitoring
- Web MAC address browsing
- Telnet server
- TFTP client
- SNMP v.1, v.2c, v.3
- SNMP trap on MAC notification
- RMON v.1
- BootP/DHCP client
- DHCP auto-configuration
- DHCP relay option 82
- System log
- Trap/alarm/log severity control
- Dual Images
- Dual Configurations
- CPU Monitoring

### 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)
- IP v.4 Multicast Routing MIB (RFC 2932)
- PIM MIB from IP v.4 (RFC 2934)
- VRRP MIB (RFC 2787)
- D-Link enterprise MIB

## Optional Products

### Optional Management Software

- DS-510S** D-View 5.1 SNMP Network Management Program (standard version)
- DS-510P** D-View 5.1 SNMP Network Management Program (professional version)

### Optional 10-Gigabit 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 SFP Transceivers

- DEM-310GT** SFP transceiver, 1000BASE-LX standard, single-mode fiber, max. distance 10 km, 3.3V
- DEM-311GT** SFP transceiver, 1000BASE-SX standard, multi-mode fiber, max. distance 550m, 3.3V
- DEM-312GT2** SFP transceiver 1000BASE-SX standard, multi-mode fiber, max. distance 2km, 3.3V
- DEM-314GT** SFP transceiver, 1000BASE-LX standard, single-mode fiber, max. distance 50km, 3.3V
- DEM-315GT** SFP transceiver, 1000BASE-LX standard, single-mode fiber, max. distance 80km, 3.3V

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

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