xStack Integration
- Virtual Stacking of up to 32 units
- Embedded D-Link SIM for integration of all the xStack switches
- 1 Physical Stacking of up to 8 units

VLAN
- 4K VLAN support
- Selective Q-in-Q and VLAN Translation
- MAC-based VLAN
- 802.1v protocol-based VLAN

Security
- L2/L3/L4 Multi-Layer Access Control
- External RADIUS/TACACS+ Authentication
- SSH/SSL
- Guest VLAN
- Web-based Access Control (WAC)
- MAC-based Access Control (MAC)
- IP-MAC-Port Binding (IMPB)
- D-Link Safeguard Engine
- Supports Microsoft NAP

VoIP Deployment
- Auto Voice VLAN
- Highest priority
- DSCP QoS for VoIP application

Quality of Service
- 802.1p Priority Queues/Multi-Layer QoS
- IP Multicast support for bandwidth-intensive application

Traffic Monitoring & Bandwidth Control
- Port Mirroring
- Traffic Segmentation
- Bandwidth Control down to 64bps
- Broadcast Storm Control
- Committed Information Rate
- RMON v1/v2 support

Management
- Web-based GUI
- Command Line Interface (CLI)
- Telnet Server
- SNMP v1, v2c, v3
- D-Link Single IP Management (SIM)
- D-View 6.0 Network Management System

L2+ Ethernet Stacks

The DES-3528/3552 xStack series are enhanced L2+ access stackable switches designed to connect end-users in a secure SMB (small and medium size business) or enterprise network. These switches provide physical stacking, multicast and enhanced security, making it an ideal access layer solution. The DES-3528/3552 xStack Series can seamlessly integrate with L3 core switches to form a multi-level network structure consisting of a high-speed backbone and centralized servers.

Flexible & Cost-Effective Ethernet Stack
The DES-3528/3552 series provide the option of 24 or 48 10/100Mbps Ethernet ports and up to four Gigabit uplinks per switch. Users requiring connections to devices such as IP phones, network cameras and wireless APs can deploy the DES-3528P or DES-3552P, which provides 24 10/100Mbps PoE ports. Eight of these PoE ports provide up to 30watts per port, while the remaining adhere to the 802.3af standard (15.4watt output per port), giving administrators the ability to connect to the 802.3af standard devices as well as the 802.3at pre-standard equipment such as the 802.11n AP. The two combo 10/100/1000BASE-T SFP slots on the front panel provide flexible copper or fiber Gigabit connection. The two 10/100/1000BASE-T ports on the back panel are designed for flexible dual usage. They can be used either as stacking ports with 4Gbps bidirectional stacking bandwidth, or can simply be used as copper Gigabit uplinks. Physical stacking capability allows administrators to add up to eight switch units per stack on a scalable expansion basis. This series offers an attractive stackable switch alternative to the expensive chassis-based solution.

Comprehensive Security
The DES-3528/3552 series provide users with the latest security features such as 802.1X Guest VLAN, MAC-based Access Control (MAC) and Web-based Access Control (WAC). 802.1X Guest VLAN is a comprehensive end-point security solution for user authentication/authorization and WAC guarantees granular network access control with a user-friendly authentication mechanism. The IP-MAC-Port Binding feature allows administrators to bind a source IP address with an associated MAC and also define the port number to enhance user access control. With the DHCP Snooping feature, the switch automatically learns IP/MAC pairs by snooping DHCP packets and saving them to the IMPB white list. This keeps the network secure and auditable. The D-Link Safeguard Engine identifies and prioritizes "CPU interested" packets to prevent malicious traffic from interrupting normal network flows and protects switch operation.

Enhanced Network Performance & Availability
The DES-3528/3552 series targets SMB/enterprise customers who require a high level of network security and maximum uptime. It offers 4K VLAN, advanced selective Q-in-Q, as well as delivering progressive QoS capability for mission-critical applications and multicast services. The switches offer superior performance and availability through the latest Spanning Tree protocol, optional redundant power, and Loopback Detection (D-Link's advanced technology for preventing loops without the presence of STP).

User-friendly & Ecosystem-friendly
The DES-3528/3552 series uses D-Link's Web GUI 2.0, an easy-to-use web interface, and configuration wizards to minimize administrators' learning curve and make deployments easier to plan and implement. Utilizing the latest generation of chipsets, the DES-3528/3552 series optimizes power consumption to reduce energy costs and contribute to a greener environment. In addition, the fanless design of the DES-3528 and DES-3528DC ensures quiet operation, ideal for deployment in open spaces. The DES-3528P, DES-3552, and DES-3552P are equipped with a Smart Fan feature. This feature allows for the built-in fans to automatically turn on at a certain temperature, providing continuous, reliable and eco-friendly operation of the switches.

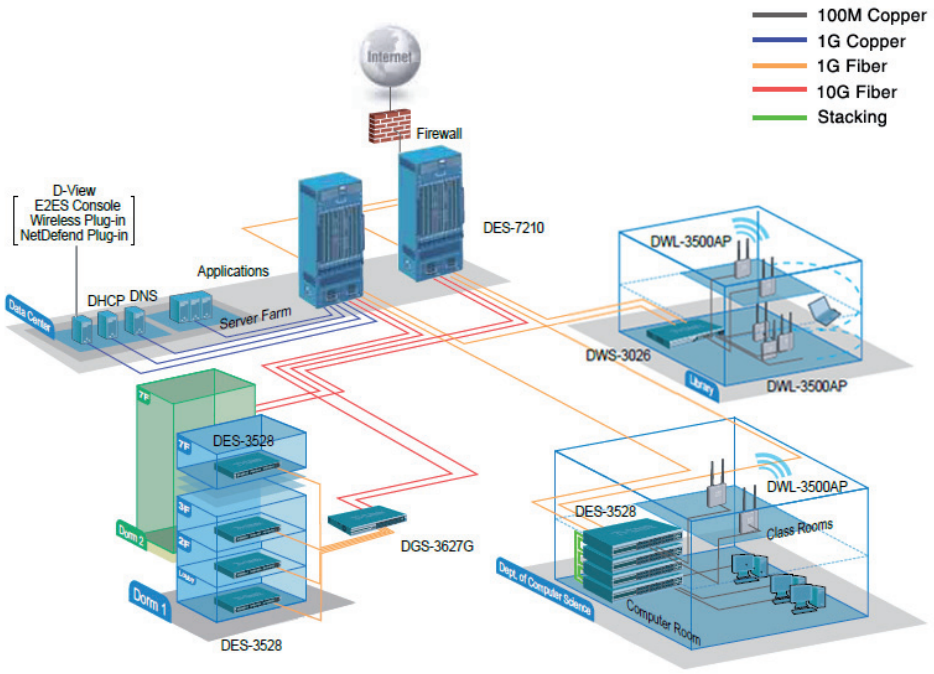
Technical Specifications		DES-3528	DES-3528DC	DES-3528P
Interface	10/100BASE-TX Ports	24		
	10/100/1000BASE-T Ports	2		
	Combo 10/100/1000BASE/ SFP Ports	2		
	RS-232 Console Port	1		
	PoE Support	–	–	Per 10/100BASE-TX Port[1]
	Gigabit & 100BASE-FX Fiber Support On SFP	✓		
Performance	Switching Capacity	12.8 Gbps		
	64-Byte Packet Forwarding Rate	9.5 Mpps		
Physical & Environmental	Size	19-inch Standard Rack-Mount Width, 1U Height		
	MTBF	203,785 hours	419,736 hours	345,226 hours
	Heat Dissipation	69.9 BTU per hour	62.68 BTU per hour	1723 BTU per hour
	Power Input	100 to 240 VAC, 0.5 A (max.)	48 VDC, 0.6 A (max.)	100 to 240 VAC, 6.3 A (max.)
	Power Consumption	20.5 watts (max.)	18.38 watts (max.)	505.1 watts (max.)
	Optional Redundant Power Supply	DPS-200	–	DPS-600
	Dimensions (W x D x H)	441 x 210 x 44 mm		
	Weight	2.51 kg (5.53 lbs)	2.52 kg (5.55 lbs)	5.42 kg (11.94 lbs)
	Operating Temperature	0 to 50 ˚C[2]	0 to 45 ˚C	0 to 50 ˚C
	Storage Temperature	-40 to 70 ˚C		
	Operating Humidity	5% to 95% non-condensing		
	EMI	FCC Class A, CE Class A, C-Tick, VCCI		
	Safety	CB, UL / cUL		
	Acoustics	0 dB	0 dB	48.2 dB at max. speed of fan
	3rd Party Certification	MEF 9,14 EPL, EVPL, ELAN		

[1] Ports 1 to 8 support 802.3af and pre-standard 802.3at, and ports 9 to 24 support 802.3af only
[2] Operating Temperature is 0 to 45 ˚C for H/W versions below A3

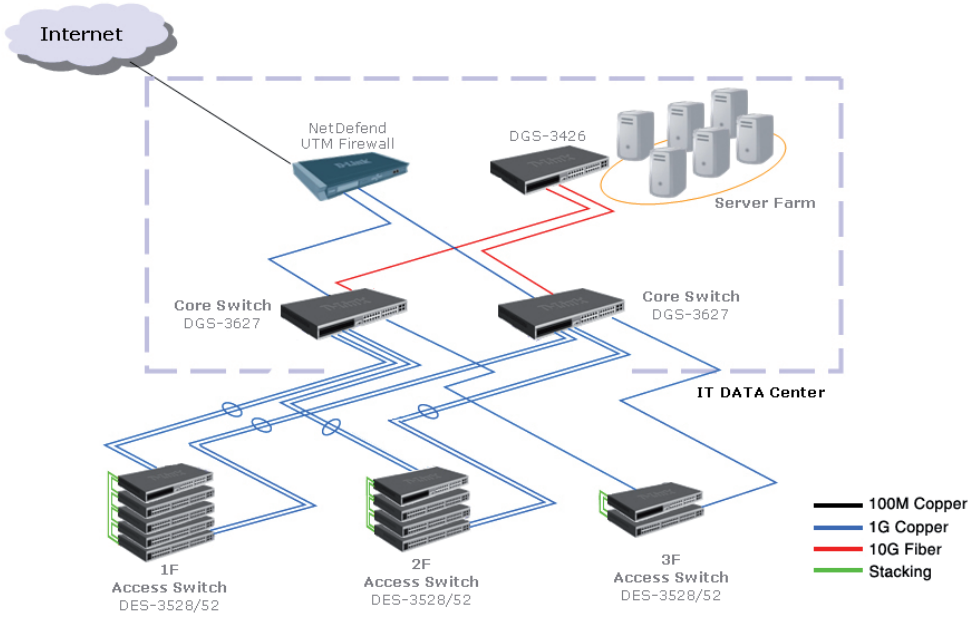
Technical Specifications		DES-3552	DES-3552P
Interface	10/100BASE-TX Ports	48	
	10/100/1000BASE-T Ports	2	
	Combo 10/100/1000BASE/ SFP Ports	2	
	RS-232 Console Port	1	
	PoE Support	–	Per 10/100BASE-TX Port[3]
	Gigabit & 100BASE-FX Fiber Support On SFP	✓	
Performance	Switching Capacity	17.6 Gbps	
	64-Byte Packet Forwarding Rate	13.1 Mpps	
Physical & Environmental	Size	19-inch Standard Rack-Mount Width, 1U Height	
	MTBF	380,412 hours	200,486 hours
	Heat Dissipation	112.87 BTU per hour	1727.94 BTU per hour
	Power Input	100 to 240 VAC, 0.8 A (max.)	100 to 240 VAC, 6.9 A (max.)
	Power Consumption	33.1 watts (max.)	506.4 watts (max.)
	Optional Redundant Power Supply	DPS-200	DPS-600
	Dimensions (W x D x H)	441 x 210 x 44 mm	441 x 370 x 44 mm
	Weight	4.09 kg (9.01 lbs)	6.52 kg (14.37 lbs)
	Operating Temperature	0 to 50 ˚C[4]	0 to 50 ˚C
	Storage Temperature	-40 to 70 ˚C	
	Operating Humidity	5% to 95% non-condensing	
	EMI	FCC Class A, CE Class A, C-Tick, VCCI	
	Safety	CB, UL / cUL	
	Acoustics	35.1 dB at max. speed of fan	50.9 dB at max. speed of fan
	3rd Party Certification	MEF 9,14 EPL, EVPL, ELAN	

[3] Ports 1 to 8 support 802.3af and pre-standard 802.3at, and ports 9 to 48 support 802.3af only
[4] Operating Temperature is 0 to 45 ˚C for H/W versions below A2

Deploying the DES-3528/3552 in a Campus Network



Deploying the DES-3528/3552 in an Enterprise Network



L2+ Ethernet Stacks

Software Features

Stackability

- Physical Stacking
  - Up to 4G Stacking Bandwidth
  - Up to 8 units per Stack
- Virtual Stacking
  - D-Link Single IP Management (SIM)
  - Up to 32 units per Virtual Stack

L2 Features

- MAC Address Table: 16K
- Flow Control:
  - 802.3x Flow Control
  - HOL Blocking Prevention
- Jumbo Frame up to 9,216 Bytes
- Spanning Tree:
  - 802.1D STP
  - 802.1w RSTP
  - 802.1s MSTP
  - BPDU Filtering
  - Root Restriction
- Loopback Detection
- ERPS (Ethernet Ring Protection Switching)[6]
- 802.3ad Link Aggregation
  - Max. 8 groups per device / 8 Gigabit ports per group
- Port Mirroring:
  - One-to-One
  - Many-to-One
  - Flow-based Mirroring
  - RSPAN Mirroring
- L2 Protocol Tunneling

L2 Multicasting

- IGMP Snooping:
  - IGMP v1/v2/v3 Snooping
  - Support 256 IGMP Groups (Will be enlarged to 1K in future software release)
  - Port/host-based IGMP Snooping Fast Leave
  - Report Suppression
- IGMP Proxy
- Limited IP Multicast
  - Up to 24 IGMP filtering profiles, 128 ranges per profile
- MLD Snooping:
  - MLD v1/v2 Snooping
  - Support 256 MLD Groups (Will be enlarged to 1K in future software release)
  - Port/host-based MLD Snooping Fast Leave
  - Report Suppression

VLAN

- VLAN Group:
  - Max. 4K VLAN Groups
- GVRP
  - Max. 255 Dynamic VLAN Groups
- 802.1Q Tagged VLAN
- Port-based VLAN
- 802.1v Protocol VLAN
- Double VLAN (Q-in-Q):
  - Port-Based Q-in-Q
  - Selective Q-in-Q
- VLAN Translation
- Voice VLAN
- MAC-Based VLAN
- Subnet-based VLAN
- ISM VLAN
- Asymmetric VLAN
- Private VLAN
- VLAN Trunking

L3 Features

- Max. 16 IP Interfaces
- ARP Proxy
- IPv6 Neighbor Discovery (ND)

L3 Routing

- Inter-VLAN Routing[6]
  - Max 224 IPv4 routes
  - Max 96 IPv6 routes
- Up to 16 static routing entries[6]
- Policy-based Route

QoS

- 802.1p
- 8 Queues
- Queue Handling
  - Strict Priority
  - 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 64Kbps
- Three Color Marker
  - trTCM
  - srTCM
- Congestion Control:
  - SRED
- Bandwidth Control:
  - Port Based (Ingress/Egress, Min. Granularity 64Kbps)
  - Flow Based (Ingress/Egress, Min. Granularity 64Kbps)

ACL (Access Control List)

- Up to 1,792 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
- VLAN-based ACL
- CPU Interface Filtering

Security

- SSH v2
- SSL v3
- Port Security
  - Up to 64 MAC address per port/VLAN[6]
- Broadcast/Multicast/Unicast Storm Control
- Traffic Segmentation
- IP-MAC-Port Binding:
  - ARP Packet Inspection
  - IP Packet Inspection
  - DHCP Snooping
  - IPv6 ND Snooping[6]
  - Support up to 500 Address Binding Entries per Device
- D-Link Safeguard Engine
- NetBIOS/NetBEUI Filtering
- DHCP Server Screening
- ARP Spoofing Prevention
- BPDU Attack Protection

AAA

- 802.1X:
  - Port-Based Access Control
  - Host-Based Access Control
  - Identity-driven Policy (VLAN, ACL[6], QoS) Assignment
  - Authentication Database Failover
- Web-Based Access Control (WAC):
  - Port-Based Access Control
  - Host-Based Access Control
  - Identity-driven Policy (VLAN, ACL[6], QoS) Assignment
  - Authentication Database Failover
- MAC-Based Access Control (MAC):
  - Port-Based Access Control
  - Host-Based Access Control
  - Identity-driven Policy (VLAN, ACL[6], QoS) Assignment
  - Authentication Database Failover
- Compound Authentication
- Guest VLAN
- Microsoft® NAP
  - Support 802.1X NAP
- RADIUS Accounting
- RADIUS and TACACS authentication for switch access
- 3 Level User Account

Operation, Administration & Management (OAM)

- Cable Diagnostics
- 802.3ah Ethernet Link OAM
- 802.3ah D-Link Extension: D-link Unidirectional Link Detection (DULD)[6]
- 802.1ag Connectivity Fault Management (CFM)
- ITU-T Y.1731[6]

Management

- Web-Based GUI
- Command Line Interface (CLI)
- Telnet Server
- Telnet Client
- TFTP Client
- ZModem
- SNMP v1/v2c/v3
- SNMP Traps
- System Log
- RMON v1
  - Support 1,2,3,9 Groups
- RMON v2
  - Support ProbeConfig Group
- sFlow
- LLDP
- LLDP-MED[6]
- BootP/DHCP Client
- DHCP Auto-Configuration
- DHCP Relay
- DHCP Relay Option 60
- DHCP Relay Option 61
- DHCP Relay Option 82
- DHCP Server
- Dual Images

- Dual Configurations
- CPU Monitoring
- DNS Relay
- Debug Command
- SNTP
- Password Recovery
- Password Encryption
- ICMPv6
- Trusted Host

MIB

- RFC1065, 1066, 1155, 1156, 2578 MIB Structure
- RFC1212 MIB Definition
- RFC1213 MIBII
- RFC1215 MIB Traps Convention
- RFC4188 Bridge MIB
- RFC1157, 2571~2576 SNMP MIB
- RFC1442, 1901~08, 2578 SNMPv2 MIB
- RFC1757, 2819 RMON MIB
- RFC2021 RMONv2 MIB
- RFC1398, 1643, 1650, 2358, 2665 Ether-like MIB
- RFC2674, 4363 Q-Bridge/P-Bridge MIB
- RFC2233, 2863 IF MIB
- RFC2618 RADIUS Authentication Client MIB
- RFC2620 RADIUS Accounting Client MIB
- RFC2925 Ping MIB
- RFC2925 Traceroute MIB
- D-Link Private MIB

Standard Compliance

- RFC768 UDP
- RFC791 IP
- RFC792 ICMPv4
- RFC2463, 4443 ICMPv6
- RFC4884 Extended ICMP
- RFC793 TCP
- RFC826 ARP
- RFC 1321, 2284, 2865, 2716, 3580, 3748 Extensible Authentication Protocol (EAP)
- RFC2571 SNMP Framework
- RFC2572 SNMP Message Processing and Dispatching
- RFC2573 SNMP Applications
- RFC2574 User-based Security Model for SNMPv3
- RFC1981 Path MTU Discovery for IPv6
- RFC2460 IPv6
- RFC2461, 4861 IPv6 ND
- RFC2462, 4862 IPv6 Stateless Address Auto-configuration
- RFC2464 IPv6 over Ethernet and Definition
- RFC3513, 4291 IPv6 Addressing Architecture
- RFC2893, 4213 IPv4/IPv6 Dual Stack
- RFC1112 Host extensions for IP multicasting
- RFC2236 IGMPv2
- RFC3376 IGMPv3
- RFC4605 IGMP/MLD Proxying
- RFC1027 ARP Proxy
- RFC2475 Differentiated Service
- RFC2597 Assured Forwarding PHB Group
- RFC2598 An Expedited Forwarding PHB
- RFC2697 Single Rate Three Color Marker
- RFC2698 Two Rate Three Color Marker
- RFC2246 SSL
- RFC2138 RADIUS
- RFC2139, 2866 RADIUS Accounting
- RFC1492 TACACS
- RFC2068, 2616 HTTP
- RFC854 Telnet
- RFC783, 1350 TFTP
- RFC2570 SNMP
- RFC3164 Syslog
- RFC3176 sFlow
- RFC951, 1542 BootP
- RFC2131 DHCP
- RFC1769 SNTP
- ITU-T G.8032 Ether Ring Protection Switching

Optional Products

Optional SFP Transceivers

DEM-310GT	1000BASE-LX, Single-mode, 10km
DEM-311GT	1000BASE-SX, Multi-mode, 550m
DEM-312GT2	1000BASE-SX, Multi-mode, 2km
DEM-314GT	1000BASE-LHX, Single-mode, 50km
DEM-315GT	1000BASE-ZX, Single-mode, 80km
DEM-210	100BASE-FX, Single-mode, 15km
DEM-211	100BASE-FX, Multi-mode, 2km

Optional WDM SFP Transceivers Title

DEM-330T	1000BASE-LX, Wavelength Tx:1550nm Rx:1310nm, Single-mode, 10km
DEM-330R	1000BASE-LX, Wavelength Tx:1310nm Rx:1550nm, Single-mode, 10km
DEM-331T	1000BASE-LX, Wavelength Tx:1550nm Rx:1310nm, Single-mode, 40km
DEM-331R	1000BASE-LX, Wavelength Tx:1310nm Rx:1550nm, Single-mode, 40km

Optional Redundant Power Supply Title

DPS-200	60-watt redundant power supply
DPS-600	500-watt redundant power supply (for DES-3528P only)
DPS-800	2-slot redundant power supply chassis
DPS-900	8-slot redundant power supply chassis

Optional Management Software[5]

DV-600S	D-View 6.0 Network Management System (Standard Edition)
DV-600P	D-View 6.0 Network Management System (Professional Edition)
DV-601P[6]	E2ES Console Plugin for D-View 6.0

[5] D-View 5.1 is also supported
[6] Product or features available in future

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