ZyXEL

ExtraSmart™ Switch Empower "DoS Attack Preventive" & "VoIP Friendly" Networks

Benefits

Robust Design Power SMB/SB Network

ZyXEL ES-1528/ES-1552 come with 24/48 Fast Ethernet copper ports plus four Gigabit uplinks (two 1000Base-T ports and two SFP slots) that fire up the non-blocking connection power to SMB/SB networks, and their multi-function design fit into copper or fiber networks easily. By utilizing 4G uplinks and port aggregation, bandwidth on critical paths can be expanded flexibly by merging multiple traffic pipelines into a logical one to dramatically improve network stability.

ExtraSmart™ — Evolution New Smart Power

While many legacy Web Smart switches improve manageability, complexity is still around. For most SMB/SB, inadequate IT expertise and complicated configuration are the major pains to overcome before getting connected. Powered by newest hardware platform with smart ACL technology behind, "Auto DoS Attack Prevention" and "Auto VoIP" empowers hassle-free operations required by a network with strict protection and VoIP-friendliness.

In addition, ZyXEL ES-1528/ES-1552 come with a streamlined intuitive Web-GUI for features demanded by SMB/SB; such as 802.1Q VLAN, 802.1p traffic priority and static port aggregation. Without awkward configurations and bulky user guide, the ES-1528/ES-1552 give real stuff for SMB/SB networks to enjoy the convenience.

Extra Secure — Auto DoS Attack Prevention

Security is the top priority for SMB/SB networks. Equipped with Auto DoS Attack Prevention, the ES-1528/ES-1552 are capable of fighting against ubiquitous DoS attacks. A few mouse clicks are all it takes to initiate the protection, complete the once-complicated ACL setting and reduce operating efforts dramatically. The ES-1528/ES-1552 support 802.1Q VLAN for traffic isolation, as well as Static MAC forwarding and dynamic ARP to establish a strictly protected network.

Extra QoS — Auto VoIP Optimization

VoIP is a key to differentiate business competitiveness. It usually requires IT expertise to optimize a network for VoIP applications. With the emergence of the "Auto VoIP", however, the ES-1528/ES-1552 can identify VoIP packet patterns and grant the highest priority to establish a VoIP-friendly communication automatically.

Auto VoIP offers IP telephony without configuration headaches. Features like four priority queues and WFQ scheduling algorithm allow users to optimize network bandwidth usage and quality of services. In term of bandwidth management, users can choose from several options and pick the most appropriate with just a mouse click.

- Auto DoS Attack Prevention
- Auto VoIP
- Flexible 4 GbE Uplink Interfaces
- IEEE 802.3ad Static Port Aggregation
- Streamlined Web-based Interface
- IEEE 802.1Q VLAN
- Port security
- IEEE 802.1p with 4 Priority Queues
- WRR and SPQ Queuing Algorithms

28-port/52-port Web-managed Ethernet Switch

ES-1528
ES-1552

Specifications

Standard Compliance

- IEEE 802.3 10Base-T Ethernet
- IEEE 802.3u 100Base-TX Ethernet
- IEEE 802.ab 1000Base-T Ethernet
- IEEE 802.3x Flow control
- IEEE 802.1p Class of service, priority protocols
- IEEE 802.1Q VLAN tagging
- IEEE 802.3ad static port aggregation

Performance

ES-1528/ES-1552

- 12.8/17.6 Gbps non-blocking switching fabric
- Switching Forwarding Rate 9.6/13.1 Mpps (1488000 pps/1000Base-T/1000Base-X, 148800 pps/100Base-TX)
- Wire-speed performance

MAC and Packet Buffer

- 8 K MAC entries
- 512 KB Packet Buffer

Traffic Management and QoS

- Rate Limiting: Port-based bandwidth control with 7 grades (64 kbps, 256 kbps, 1 Mbps, 10 Mbps, 64 Mbps, 100 Mbps, 1 Gbps)
- Port-based egress traffic shaping
- Broadcast Storm Control
- Congestion control on all ports
- IEEE 802.1p with 4 priority queues per port for different types of traffic
- WRR (Weighted Round Robin)/SPQ scheduling algorithm

Auto VoIP

Auto VoIP module matches VoIP streams and assign the highest priority for following VoIP packets

- **SIP** — Session Initiation Protocol
- **MGCP** — Media Gateway Control Protocol
- **SCCP** — Skinny Client Control Protocol

Link Aggregation

- IEEE 802.3ad static port aggregation
- Up to 6 aggregation groups, per group supports up to 8 ports

User Security and Authentication

- Specific MAC forwarding per port: only specified MAC addresses can access the network (Port Security)
- IEEE 802.1Q tagged VLAN
- 256 static VLAN, up to 4 K dynamic VLAN
- Dynamic ARP

Auto DoS Attack Prevention

Denial of Service (DoS) attacks try to disable a device or network so users no longer have access to network resources. Auto DoS Attack Prevention module matches attack types in switches and prevent network outage

Types of DoS Attacks can be prevented

- **Land Attacks** — These attacks result from sending a specially crafted packet to a machine where the source host IP address is the same as the destination host IP address. The system attempts to reply to itself, resulting in system lockup.
- **Blat Attack** — These switch result from sending a specially crafted packet to a machine where the source host port is the same as the destination host port. The system attempts to reply to itself, resulting in system lockup.
- **SYNFIN scans** — SYNchronization (SYN, ACKnowledgement (ACK) and FINish (FIN) packets are used to initiate, acknowledge and conclude TCP/IP communication sessions. The following scans exploit weakness in the TCP/IP specification and try to illicit a response from a host to identify ports for an attack:
  - Scan SYNFIN — SYN and FIN bits are set in the packet.
  - Xmascan — TCP sequence number is zero and the FIN, URG and PSH bits are set.
  - NULL scan — TCP sequence number is zero and all control bits are zeros.
  - SYN with port < 1024 — SYN packets with source port less than 1024.
- **Smurf Attacks** — This attack uses Internet Control Message Protocol (ICMP) echo requests packets (pings) to cause network congestion or outrages.
- **Ping Flooding** — This attack floods the target network with ICMP packets.
- **SYN/SYN-ACK Flooding** — This attack floods the target network with SYN or SYN/ACK packets.

Network Administration Security

- Password required for administrators

Network Management

- Web-based management
- SNMP v1, v2
- IP management: static IP
- RMON
- Port mirroring: supports Source/Destination/ Both port mirroring
- Cable Diagnostic

MIB Information

- RFC1213 MIB II (System, Interface)
- RFC1398 (Ether-like)

Hardware Specifications

- Support of auto-negotiation
- Support of auto MDI/MDI-X

ES-1528

- Ports: 24 10/100Base-T, RJ-45 ports, 2 1000Base-T ports and 2 SFP open slots

ES-1552

- Ports: 48 10/100Base-T, RJ-45 ports, 2 1000Base-T ports and 2 SFP open slots

Power Requirements

- Input voltage of AC: 100-240 VAC, 50/60 Hz
- Max power rating of AC: 11.6 Watt (ES-1528)
- Max power rating of AC: 20.5 Watt (ES-1552)

Physical Specifications

ES-1528

- Dimensions: 438 (W) x 130 (D) x 44.5 (H) mm
- Weight: 1.95 kg

ES-1552

- Dimensions: 441 (W) x 195 (D) x 44.5 (H) mm
- Weight: 2.7 kg

Environmental Specifications

- Operating Temperature: 0°C ~ 45°C
- Storage Temperature: -10°C ~ 70°C
- Operating Humidity: 10% ~ 90%, (non-condensing)

Certification

- UL 60950-1
- CSA 60950-1
- EN 60950-1
- IEC 60950-1

ZyXEL 1000 Mbps SFP Transceiver Family

Model	SFP-SX	SFP-LX-10	SFP-LHX1310-40	SFP-ZX-80	SFP-BX1310-10	SFP-BX1490-10
Laser Transmitter Characteristics						
Maximum Launch Power	-4 dBm	-3 dBm	+3 dBm	+5 dBm	-3 dBm	-3 dBm
Minimum Launch Power	-9.5 dBm	-9.5 dBm	-2 dBm	0 dBm	-9 dBm	-9 dBm
Receiver Characteristics						
Optical Receiver Sensibility	-17 dBm	-20 dBm	-23 dBm	-24 dBm	-20 dBm	-20 dBm
Maximum Input Power	-3 dBm	-3 dBm	-3 dBm	-3 dBm	-3 dBm	-3 dBm
Optical Budget	7.5 dB	10.5 dB	21 dB	24 dB	11 dB	11 dB
Wavelength	850 nm	1310 nm	1310 nm	1550 nm	1310 nm (TX) 1490 nm (RX)	1490 nm (TX) 1310 nm (RX)
Connector	LC	LC	LC	LC	LC	LC
Transmission Distance vs Fiber Cable Specification						
62.5 um MMF	220 m	220 m	N/A	N/A	N/A	N/A
50 um MMF	550 m	550 m	N/A	N/A	N/A	N/A
9 um SMF	N/A	10 km	40 km	80 km	10 km	10 km
Operational Ranges						
Supply Voltage	3.1 ~ 3.5 V	3.1 ~ 3.5 V	3.1 ~ 3.5 V	3.1 ~ 3.5 V	3.1 ~ 3.5 V	3.1 ~ 3.5 V
Max Current	250 mA	300 mA	300 mA	300 mA	300 mA	300 mA
Dimensions (mm)	56 x 13.4 x 12.4	56 x 13.4 x 12.4	56 x 13.4 x 12.4	56 x 13.4 x 12.4	56 x 13.4 x 12.4	56 x 13.4 x 12.4

For more product information, visit us on the web www.ZyXEL.com

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