



## Key Features

- L3 Advanced Routing Protocols, OSPF, VRRP
- Multilayer-aware (L2/L3/L4) ACL for Security Protection and Traffic Optimization
- IGMPv3, DVMRP, MVR
- Port Security and Enhanced 802.1x Port Authentication
- VLAN Stacking (QinQ) for Network-based VPN or Campus VPN
- 802.1x Authentication
- ZyXEL iStacking™ Technology Clustering Network Management
- SNMP & RMON Support
- IEEE 802.1p 8 Hardware Priority Queue
- WFQ, WRR and SPQ Queuing Algorithms
- Backup Power System Support

## Enterprise Switches

### ZyXEL Switch 4500 Series

The ZyXEL Gigabit Switch 4500 Series consists of two switches: the ZyXEL XGS-4528F and XGS-4526. These are intelligent multilayer (L2/L3/L4) Ethernet switches that provide four flexible performance choices—10/100/1000 Mbps and 10 Gbps speeds, along with enterprise-class availability, resiliency and a redundant architecture. The 4500 Series offers complete Layer-3 features to make it the preferred choice for real routing networks in the enterprise.

The ZyXEL 4500 Series has two variations:

The XGS-4528F features a very unique design in its hardware configuration. With 24 Gigabit dual-personalities, 2 built-in 12G stacking interfaces and 1 open slot for the optional 10-Gigabit uplink port module, the XGS-4528F provides the maximum flexibility on deployment.

The XGS-4526 provides 20 1000Base-T ports, 4 Gigabit dual-personalities, and 1 open slot for the optional 10-Gigabit uplink port module, the XGS-4526 is ideal for small and medium enterprises seeking to build a high performance network.

## Key Benefits

### Managed L2 and L3 Gigabit Connectivity for Lower Future Expansion and Upgrading Costs

The ZyXEL Switch 4500 Series provides wirespeed Layer-2 Gigabit switching of up to 144 Gbps, along with advanced Layer-3 switching, multicasting, resiliency including OSPF, DVMRP and VRRP for connectivity requirements. Its four flexible speeds—10/100/1000 Mbps and 10 Gbps performance—also provide greater flexibility to the core networks or high-performance servers.

### Unique 24 GbE Copper and Fiber Connectivity in 1U-height Design (XGS-4528F Only)

Unlike competing offerings with GbE copper and fiber connectivity, the leading architecture employed by XGS-4528F delivers 24 1000Base-T copper interfaces along with standard RJ-45 connectors and 24 SFP slots in a 19-inch 1U enclosure. This unique benefit gives network designers the highest flexibility and cost advantage in terms of equipment investment, network administration and system maintenance.

### Intelligent QoS for Mission Critical Applications Ensure Best Network Status

With more applications integrated into IP-based networks, traffic flows become more complicated and diverse than ever. To ensure the quality of multiple services on a converged network, adopting advanced traffic control technologies to manage different types of traffic flows is critical and necessary to enterprises.

The ZyXEL 4500 Series supports Intelligent QoS features to regulate network traffics for the best performance. Taking advantage of Class of Service (CoS) and Differentiated Services Code Point (DSCP) supports, administrators can easily classify and perform traffic prioritizing for critical business applications such as VoIP and video conferencing. In addition, the 4500 Series provides advanced bandwidth control with granularity of 64 kbps and 8 hardware priority queues that bring better bandwidth administration to network operators.

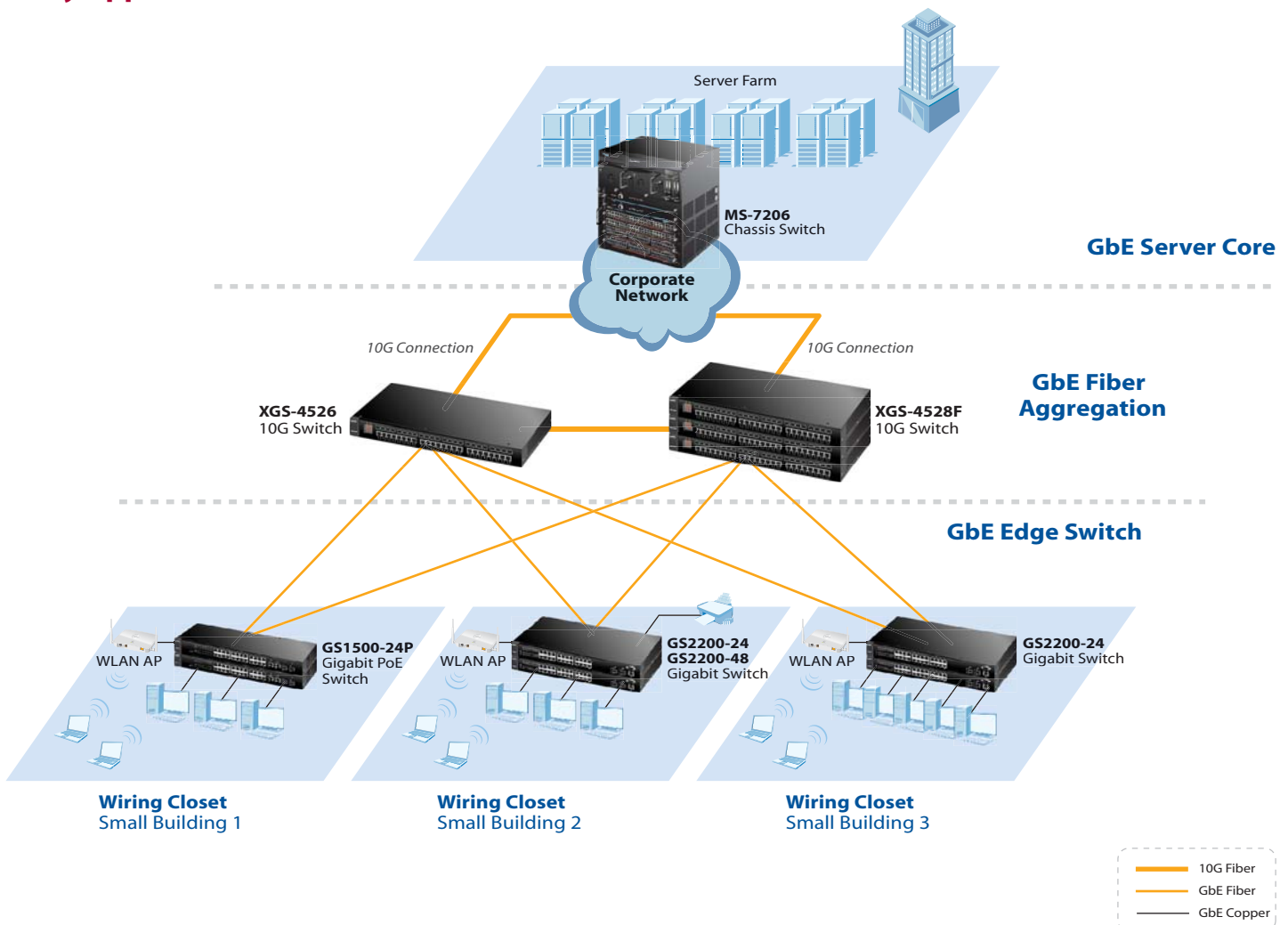
### Robust and High-Availability System Design Guarantee Non-stop Operations

The ZyXEL 4500 Series supports the VRRP routing protocol for failover transmissions. The second DC power source, called BPS, protects the device from internal AC power supply failures, while the IEEE 802.3ad Link aggregation reduces network downtime by providing more packet paths and bandwidth aggregation to critical paths. The Gigabit connectivity not only gives superb transmission bandwidth, but also allows users to set up Gigabit aggregation for securing critical transmission paths. The IEEE 802.1w Rapid spanning tree (RSTP) also allows immediate recovery from failed links by sending packets via a backup link path.

### Hassle-free Network Management and Stacking Capability of Up to 24 Units

The ZyXEL 4500 Series provides various network management options for administrators to choose to manage the switch using friendly Web-based configuration or convenient text-based CLI (Command Line Interface), and it also supports SNMP-based, centralized management software for switch maintenance to be done remotely. On the other hand, the 4500 Series supports the ZyXEL-exclusive iStacking™ clustering management technology that works across different floors and routing domains to locate other iStacking-capable switches in the same management cluster, allowing administrators to manage 24 switches with one single IP. This not only greatly reduces operating costs, but also offers more flexible maintenance to ZyXEL Switches.

## Key Applications



## Specifications

Feature/Model	XGS-4528F	XGS-4526
Product Picture		
<b>Port Density</b>		
10/100/1000Base-T	-	20
Dual Personality GbE Ports	24	4
10G Extend Slot	1	1
12G Stacking Port	2	-
<b>Performance</b>		
Switching Capacity	144 Gbps	96 Gbps
Switching Forwarding Rate	100 Mpps	71.5 Mpps
Packet Buffer	768 KB	768 KB
MAC Address	8K	8K
IP Address Table	2K	2K
Routing Entries	512	512
Routing Domains	64	64
<b>Power Requirement</b>		
Input Voltage of AC	100 to 240 V, 50/60 Hz	100 to 240 V, 50/60 Hz
Input Voltage of DC	-48 to -60 V DC	-48 to -60 V DC
Maximum Power Consumption	62.8 Watt	62.8 Watt
<b>Environmental Specification</b>		
Operating Temperature	0°C ~ 45°C	0°C ~ 45°C
Storage Temperature	-25°C ~ 70°C	-25°C ~ 70°C
Operating Humidity	10% ~ 90%, (non-condensing)	10% ~ 90%, (non-condensing)
<b>Physical Feature</b>		
Dimensions (W) x (D) x (H) mm	440 x 310 x 44.45	440 x 310 x 44.45
Weight, kg	7.0	7.0

## Features

### Standard Compliance

- IEEE 802.3 10Base-T Ethernet
- IEEE 802.3u 100 Base-Tx Ethernet
- IEEE 802.ab 1000 Base-T Ethernet
- IEEE 802.3x flow control
- IEEE 802.1D spanning tree protocol
- IEEE 802.1w rapid spanning tree protocol
- IEEE 802.1s multiple spanning tree protocol
- IEEE 802.1p class of service, priority protocols
- IEEE 802.1Q VLAN tagging
- IEEE 802.1x port authentication
- IEEE 802.3ad LACP aggregation

### Traffic Management and QoS

- Rate Limiting: Rule-based/Port-based bandwidth control, 64 kbps granularity
- Dual-Rate-Three-Color
- CIR/PIR for bandwidth control
- Port-based egress traffic shaping
- Broadcast storm control
- IEEE 802.1p with 8 priority queues per port for different traffic types
- WFR (Weighted Fair Queue)/WRR (Weighted Round Robin)/SPQ scheduling algorithm
- DSCP/DSCP to 802.1p priority mapping
- Static multicast
- IGMP/IGMP snooping v1, v2, v3
- IGMP throttling
- Support IGMP snooping fast leave
- Support IGMP snooping statistics
- MVR
- Congestion control on all ports
- Selective QinQ

### IP Routing and Service Features

- 64 IP routing domains
- 2K IP address table
- Wire-speed IP forwarding
- RIP v1, v2
- Static routing
- DHCP server/relay
- OSPF summary address

### Link Aggregation

- IEEE 802.3ad LACP link aggregation
- Static manually port trunking
- Up to 6 aggregation groups, 8 ports per group randomly selected
- Link aggregation algorithm of source/destination IP address

### Resilient Network

- IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
- IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
- BPS (Backup Power System)

### User Security and Authentication

- IEEE 802.1Q tag-based and port-based VLAN
- Support GVRP, automatic VLAN member registration
- 1K static VLAN, up to 4K dynamic VLAN
- Full range 4K PVID support
- Port-base VLAN & VLAN isolation
- IP classification VLAN
- VLAN counter
- VLAN search
- VLAN translation
- VLAN MAC limit
- Intrusion Lock
- MAC freeze
- MAC search
- MAC filtering per port secures access to each port
- Port security
- Limited MAC number per port
- IP source guard
- Loop guard
- RADIUS MAC login
- IP filtering
- TCP/UDP socket filtering
- BPDU transparency
- 802.1x port-based authentication
- TACACS+
- Layer 2 protocol tunneling

### Network Administration Security

- User name/password required for Web/Telnet/local console administrators
- Two-level security by specific SNMP read/write community
- Multiple login session
- Multiple access permission management
- SSH v1/v2
- SSL/TLS

### Network Management

- ZyXEL iStacking™, up to 24 switches managed by single IP address
- Web-based management
- Telnet CLI
- SNMP v1, v2c, v3
- RS-232c local console
- IP management: static IP or DHCP client
- RMON four RMON groups 1, 2, 3, 9 (history, statistics, alarms, and events)
- Port mirroring: source/destination/both port mirroring
- IEEE 802.1ag CFM
- IEEE 802.1AB LLDP
- Support transceiver DDMI information (including MIB)

### Intelligent ACL (L2/L3/L4 Access List Control)

- Based on MAC address
- Based on VLAN
- Based on IP address
- Based on protocol type
- Based on TCP/UDP type
- Based on DSCP

### Hardware



- Support of auto-negotiation
- Support of auto MDI/MDI-X
- Console: D-Sub 9 pin Female (DCE)
- Management: 1 out-of-band management RJ-45 port

### Certification


- UL 60950-1
- CSA 60950-1
- EN 60950-1
- IEC 60950-1
- EU RoHS Compliant

### Accessories

#### 10-Gigabit Module (Optional)

Model	Features
<b>EM-412</b> 	<ul style="list-style-type: none"> <li>• 2-slot CX4 10 GbE module</li> <li>• Extended 10 GbE CX4 module for short distance deployment</li> </ul>
<b>EM-422</b> 	<ul style="list-style-type: none"> <li>• 2-slot XFP 10 GbE module</li> <li>• Extended 10 GbE XFP module for long distance deployment</li> </ul>

#### Backup Power System (Optional)

Model	Features
<b>BPS-120</b> 	<ul style="list-style-type: none"> <li>• Up to 6 switches can be connected to one BPS-120</li> <li>• Provides power to one switch without traffic or user interruption or switch rebooting in the event of a switch internal power supply failure</li> <li>• Temperature, power and fan speed monitoring</li> </ul>

#### SFP Transceivers (Optional)

Speed	Model	Type	Description
<b>10 Gigabit</b>	FTLX8511D3 (XFP-SR)	SC connector	Singlemode, up to 300 m reach
	FTLX1611M3 (XFS-ER)	SC connector	Singlemode, up to 40 km reach
	FTLX1412D3BCL (XFP-LR)	SC connector	Singlemode, up to 10 km reach
<b>Gigabit</b>	SFP-1000T	RJ-45 connector	Up to 100 m using standard Ethernet cable
	SFP-SX-D	LC connector	SFP SX 550 m commercial type transceiver, DDMI version
	SFP-LX-10-D	LC connector	SFP LX 10 km commercial type transceiver, DDMI version
	SFP-BX1310-10-D	LC connector	Bidirectional singlemode, up to 10 km reach, DDMI version*
	SFP-BX1490-10-D	LC connector	Bidirectional singlemode, up to 10 km reach, DDMI version*
	SFP-LHX 1310-40-D	LC connector	SFP LHX 1310 wavelength 40 km commercial type transceiver, DDMI version
SFP-ZX-80-D	LC connector	SFP ZX 80 km commercial type transceiver, DDMI version	

\*:Bi-directional SFP must be used in pairs (Example: 1 x SFP-BX1310-10-D and 1 x SFP-BX1490-10-D connected together is a solution)



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