



Ultimate L3+ Platform Empowers Intelligent Network Convergence

- 4GbE Uplink Hardware Architecture
- Advanced Routing Protocol (OSPF, RIP, VRRP and DVMRP)
- Backup Power System (BPS)
- Multi-layer Aware (L2/L3/L4) ACL for Optimizing Traffic Prioritization
- IEEE802.1p 8 Hardware Priority Queue
- WFQ, WRR and SPQ Queuing Algorithms
- Multi-layer Aware (L2/L3/L4) ACL for Security protection
- Port Security and enhanced 802.1x Port Authentication
- MAC Freeze and Intrusion Lock
- VLAN Stacking (Q-in-Q)



Managed L3+
Fast Ethernet Switch

ES-4124

Benefits

High Performance L3+ Platform for Intelligent Network Convergence

ZyXEL ES-4124 is a 24-port premium L3+ managed switch. Besides, comprehensive L2+ features and resilient hardware design, advanced routing like RIP, OSPF, VRRP, IGMP and DVMRP are supported to fully shoulder the tough tasks in the network core. For service providers, public sectors, healthcare industry, and SMB, the ES-4124 is the ideal solution to build up a convergence network empowering high network resiliency, superior QoS and strict security protection.

Robust and High-Availability System Design

The ES-4124 supports VRRP routing protocol for failover transmissions. BPS, second DC power source, protects from internal AC power supply failure. IEEE802.3ad Link aggregation reduces network downtime by providing more packet paths and bandwidth aggregation to critical paths. The 4G uplink not only gives superb transmission bandwidth, but also allows users to set up Gigabit aggregation to secure critical path transmission. IEEE802.1w Rapid spanning tree (RSTP) allows immediate recovery from failed links by sending packets via a backup link path.

Intelligent QoS for Multi-Service Optimization

The ES-4124 comes with comprehensive features sets for QoS, like DVMRP, multi-layer aware ACL (L2/L3/L4), 8 hardware priority queues, DSCP and WFQ scheduling algorithm, etc to easily harness IP applications, like VoIP, Video streaming, video-conferencing and IP TV. In addition, the ES-4124 supports flexible bandwidth control with granularity of 64kbps that enables network operators to perform efficient bandwidth administration.

Complete, Multi-Layer Protection

Multi-layer aware ACL (Access Control List) enforces policy-based protection by utilizing parameters (MAC, VLAN, IP, Protocol, TCP/UDP, and DSCP). To fine-tune device access control levels, you can configure MAC freeze, MAC filtering and limit the number of MAC address on a port. To complement user authentication, 802.1x can further facilitate the assignment of VLAN and bandwidth. "Intrusion lock" can down the link once link status change. In addition, VLAN Stacking (Q-in-Q) can be applied for enterprise-class L2VPN application. All the features above allow users to implement strict layer 1 to layer 4 security policies.

Specifications

Standard Compliance

- IEEE 802.3 10Base-T Ethernet
- IEEE 802.3u 100Base-Tx Ethernet
- IEEE 802.3ab 1000Base-T Ethernet
- IEEE 802.3z
- IEEE 802.3x Flow control
- IEEE 802.1D Spanning tree protocol
- IEEE 802.1w Rapid 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
- IEEE802.1ad VLAN Stacking

Performance

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

MAC and Packet Buffer

- 16K MAC entries
- 32MB Packet Buffer

Traffic Management and QoS

- Rate Limiting: Rule-based/Port-based bandwidth control, 64kbps granularity
- Supports Dual-Rate-Three-Color (set 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
- WFQ (Weighted Fair Queuing)/WRR (Weighted Round Robin)/SPQ scheduling algorithm
- Supports DSCP
- Supports DSCP to 802.1p priority mapping
- Supports IGMP/IGMP snooping
- Supports MVR
- Congestion control on all ports

IP Routing and Service Features

- 64 IP routing domains
- 4K IP address table
- Wire-speed IP forwarding
- RIP v1, v2
- OSPF v2
- Static Routing
- DVMRP
- IGMP v1, v2
- VRRP
- Support DHCP Server/Relay

Link Aggregation

- IEEE 802.3ad LACP link aggregation compliant
- Support static manually port trunking
- Up to 6 aggregation groups, 8 ports/per group randomly selected

Resilient Network

- VRRP
- IEEE802.1w Rapid Spanning Tree Protocol (RSTP)
- BPS (Backup Power System)

User Security and Authentication

- MAC filtering per port secures access to each port
- Specific MAC forwarding per port: only specified MAC addresses can access the network (Port Security)
- Limited MAC number per port
- IP Filtering
- TCP/UDP Socket Filtering
- 802.1x port-based authentication, compensated assignment over VLAN and bandwidth for valid access
- IEEE 802.1Q tag-based and port-based VLAN
- Support GVRP, automatic VLAN member registration
- 256 static VLAN, up to 4K dynamic VLAN
- Full range 4K PVID support
- Port-based VLAN & VLAN isolation
- MAC Freeze
- Intrusion Lock
- Double VLAN tagging (Q-in-Q)
- BPDU transparency

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, v2, 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) for enhanced traffic management, monitoring, and analysis
- Port mirroring: supports Source/Destination/Both port mirroring

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

MIB Information

- RFC1213 MIB II
- RFC1493 Bridge MIB
- RFC1643 Ethernet MIB
- RFC1757 RMON group 1, 2, 3, 9
- RFC2011 IP MIB
- RFC2012 TCP MIB
- RFC2013 UDP MIB
- RFC2233 ifVHCPacketGroup
- RFC2674 VLAN MIB
- RFC2925 PING-MIB and TRACEROUTE-MIB
- ZyXEL Private MIB

Hardware Specifications

- 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
- Ports: 24x10/100Base-T, RJ-45 ports, 2 x1000Base-T, RJ-45 ports and 2 dual-personality GbE ports (RJ-45 or SFP open slots)

Physical Specifications

ES-4124 (28 ports)

- 24 x 10/100 ports + 2 x 1000Base-T ports + 2 x Dual-personality GbE ports
- Dimensions: 438 (W) x 270 (D) x 44.45 (H) mm
- Weight: 4.0 Kg



Power Requirements

- Input voltage of AC: 100-240VAC, 50/60Hz
- Max power rating of AC: 60 Watt
- Backup power supply into 12V DC

Environmental Specifications

- Operating temperature: 0°C ~ 45°C
- Storage temperature: -25°C ~ 70°C
- Operating humidity: 10% ~ 90%, (non-condensing)

Safety

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

* Firmware upgradeable for future enhancement

Operational Information

Transceiver (Optional)

Model Name	Optical Receiver Sensitivity	Wavelength	Connector	Transmission Distance vs. Fiber Cable Specification			Operational Ranges	
				62.5um Multi-Mode Fiber	50um Multi-Mode Fiber	9/10um Single-Mode Fiber	Supply Voltage	Max Current
SFP-SX	-17 dBm	850 nm	LC	220 m	550 m	-	3.15 ~ 3.45 V	300 mA
SFP-LX-10	-20 dBm	1310 nm	LC	550 m	550 m	10 km	3.15 ~ 3.45 V	300 mA
SFP-LHX1310-40	-23 dBm	1310 nm	LC	-	-	40 km	3.15 ~ 3.45 V	300 mA
SFP-ZX-80	-24 dBm	1550 nm	LC	-	-	80 km	3.15 ~ 3.45 V	300 mA

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

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