

# ZXR10 5900-L Series

## Full Gigabit Intelligent Routing Switches Datasheet

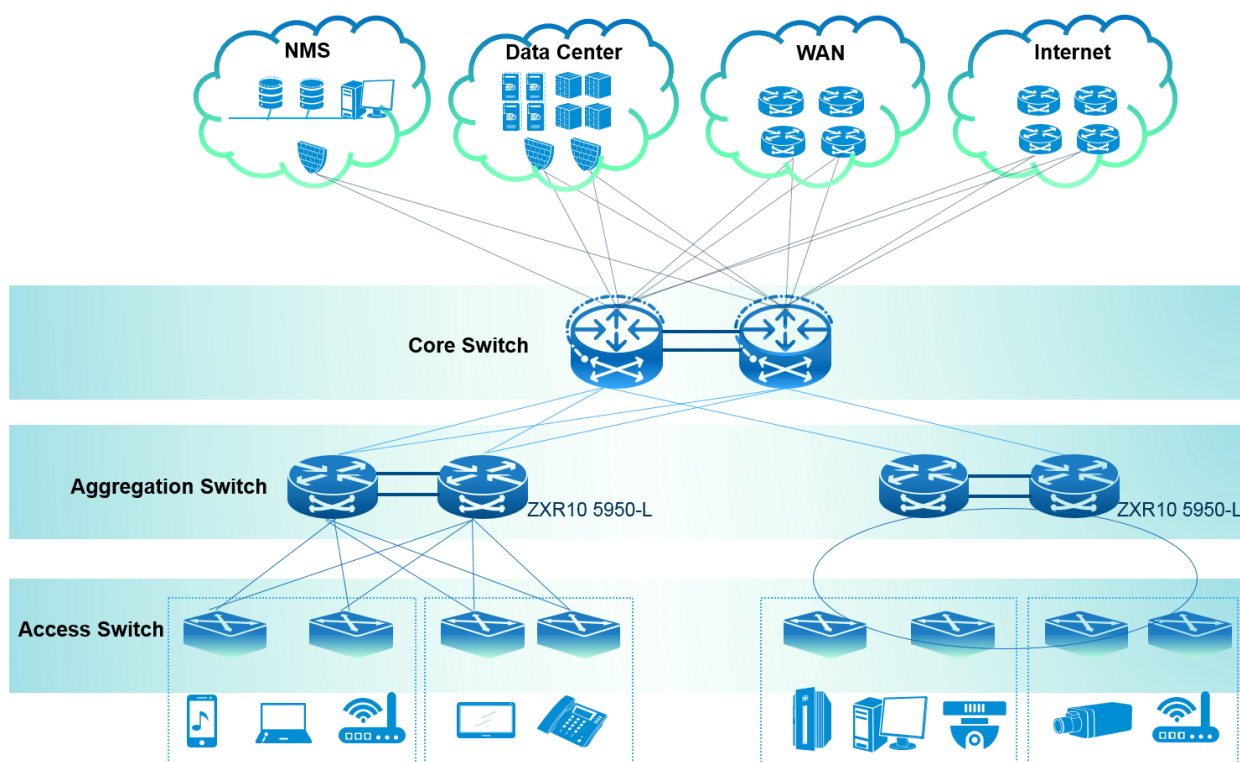
### Overview

The ZXR10 5950-L Series is a family of full gigabit intelligent routing switches developed by ZTE to implement secure IP switching, all-GE networking, and QoS assurances. The series supports a wide range of IPv4 and IPv6 routing protocols, VLAN control, all-GE traffic switching, QoS assurance, traffic limiting, 802.1X authentication, virus protection, as well as comprehensive service control and user management capabilities. Thanks to these intelligent features, the series can serve as L3 all-GE aggregation switches in office networks, campus networks, and networks that have high requirements for service management and network security assurance.



## Application Scenarios

The ZXR10 5950-L Series supports VSC2.0 and PoE/PoE+. It can be applied in multiple scenarios including campus/SME access and aggregation. Below is an example of using the switches to provide access in a campus application.





# ZXR10 5950-L Series

## Full Gigabit Intelligent Routing Switches

## Highlights

### ➤ Powerful Service Transmission Capability

**Transmitting multiple services including WLAN, Internet, voice, video and other data services**

- By supporting rich L2 switching and L3 routing functions as well as low latency forwarding, the ZXR10 5950-L Series can carry multiple services including WLAN, Internet, voice, video and other data services.
- Comprehensive L2/L3 multicast protocols including PIM-SM, PIM-DM, PIM-SSM, MLD, IGMP snooping, filtering, proxy, fast leave, and MVR (Multicast VLAN Registration) to facilitate the deployment of these services. With IPTV control, operators can apply different CAC (Channel Access Control) rules for users of packages.
- PoE/PoE+ enables more service access scenarios.

### ➤ Innovative VSC2.0 (Virtual Switch Cluster) Technology

**Enhancing cluster system capacity and port density to simplify network topology and management**

- Real-time hot-standby information synchronization between master and backup switches can ensure seamless switchover to prevent network failures and enhance network reliability.
- Real-time non-blocked and stacked bandwidth reaches 80Gbps to eliminate bandwidth bottlenecks between VSC systems.
- The high reliability of N+1 backup ensures no cluster system fault will be caused by a single device, thus reducing service interruption. The Multi-Active Detection (MAD) technology ensures that there are not two masters in the network when the VSC is split. Together with real-time hot-standby information synchronization and seamless switchover, the MAD technology enable a more elastic VSC network.

### ➤ Comprehensive IPv6 Features

**Supporting IPv6 unicast routing protocols and IPv4-to-IPv6 tunnel technologies**

- Rich IPv6 unicast routing protocols (IPv6 static routing, RIPng, OSPFv3, IS-ISv6, and BGP4+) and multicast features (MLD v1/v2, MLD snooping, PIMv6, etc.)
- Rich IPv4-to-IPv6 tunnel technologies: IPv6 manual tunnel, 6-to-4 tunnel, ISATAP tunnel, IPv4-compatible automatic tunnel, etc.



# ZXR10 5950-L Series

## Full Gigabit Intelligent Routing Switches

### ➤ Flexible PoE/PoE+

#### Providing power for remote devices

- Ethernet power supply complies with 802.3af (PoE) and 802.3at (PoE+) standards. It is used to provide power for remote devices (including IP phones, WLAN APs, and network cameras) through twisted-pair cables.
- Forced power supply functions are compatible with Powered Devices (PDs) that do not comply with 802.3af and 802.3at standards.
- Support assigning time periods for PoE. In time periods when power output is not needed, the PoE function can be turned off to save energy.
- PD port power detection. If the actual power is greater than the PSE-distributed power, power supply is stopped.
- The power supply status of both PSE and PD, such as whether power is being supplied, power level, priority and temperature, can be checked in real time.

### ➤ Enhanced Reliability and Multi-Dimensional Security

#### Enabling fast system recovery from any link or node fault

- Support the smart Ethernet ring protection function, which complies with RFC3619 and ITU.T G.8032 standards. The function can be implemented in both closed-ring and open-ring topologies. Multiple instances can be configured to realize load-balancing. The switchover time can be kept below 50ms.
- Various authentication methods such as 802.1x, Radius, and TACACS+.
- CPU overload protection and DDoS prevention guarantee a secure network.

### ➤ Low OPEX and Green Design

#### Instant troubleshooting by reading indicators on the front panel without login via a terminal

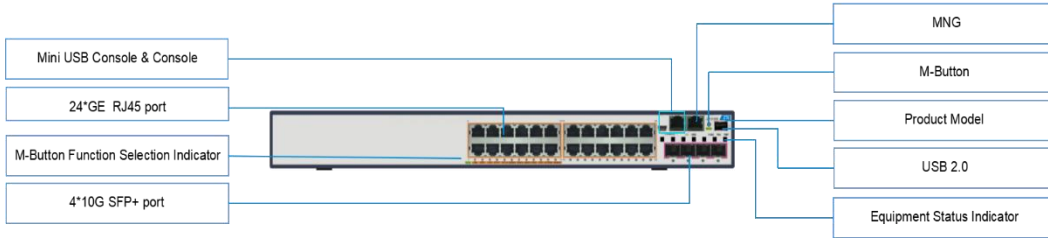
- The innovative M-Button function allows for instant troubleshooting and minimizes OPEX.
- IEEE 802.3az EEE (Energy Efficient Ethernet). Via chip-level power management, ports can automatically sleep when there is no traffic.
- Dynamic fan adjustment technology. The fan speed can be automatically adjusted within 5 levels according to the temperature inside the switch. This not only reduces power consumption, cuts noise and extends the life cycle of the fans.
- Comply with ROHS, WEEE and ISO14001 certifications. No plumbum (Pb) in all the product materials and the whole production process. Recyclable and degradable packing materials.



# ZXR10 5950-L Series Full Gigabit Intelligent Routing Switches

## Physical Interfaces and Structure

### ZXR10 5950-28TD-L: 28-Port Full Gigabit Intelligent Routing Switch

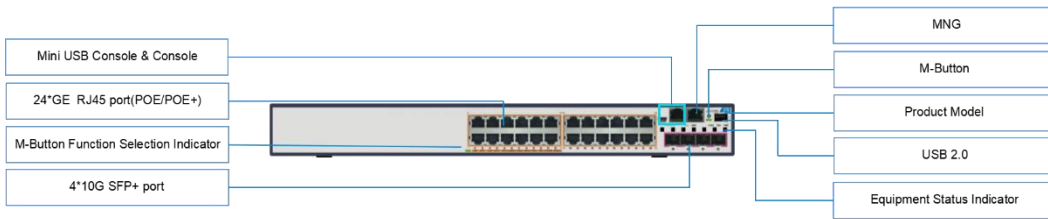


ZXR10 5950-28TD-L Front View



Side-to-Side Airflow

### ZXR10 5950-28PD-L: 28-Port Full Gigabit Intelligent Routing Switch

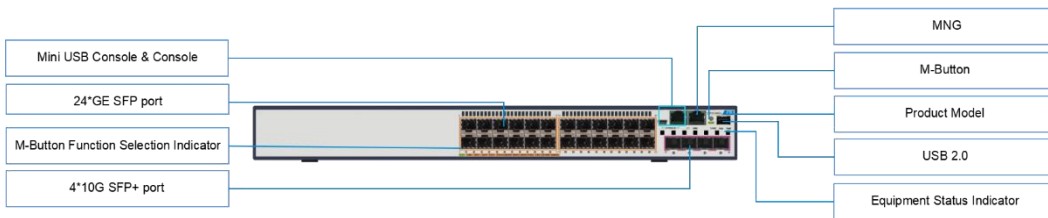


ZXR10 5950-28PD-L Front View



Side-to-Back Airflow

### ZXR10 5950-28SD-L: 28-Port Full Gigabit Intelligent Routing Switch

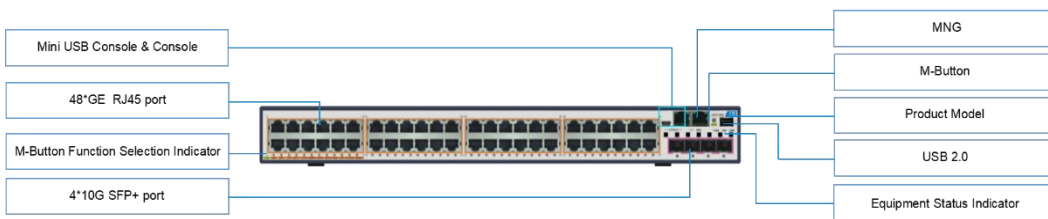


ZXR10 5950-28SD-L Front View



Side-to-Back Airflow

### ZXR10 5950-52TD-L: 52-Port Full Gigabit Intelligent Routing Switch

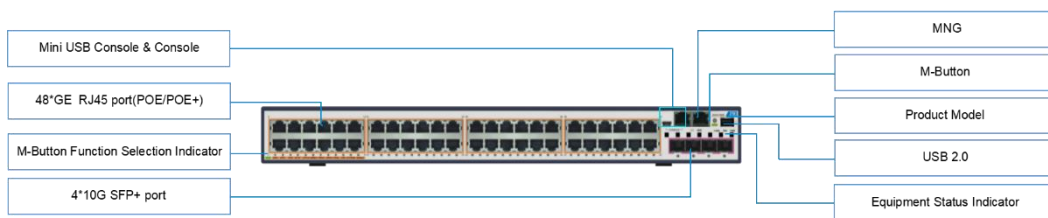


ZXR10 5950-52TD-L Front View



Side-to-Back Airflow

### ZXR10 5950-52PD-L: 52-Port Full Gigabit Intelligent Routing Switch



ZXR10 5950-52PD-L Front View



Side-to-Back Airflow



# ZXR10 5950-L Series

## Full Gigabit Intelligent Routing Switches

### Technical Specifications - Physical

	5950-28TD-L	5950-52TD-L	5950-28PD-L	5950-52PD-L	5950-28SD-L
<b>Fixed Port</b>	24*GE RJ45+ 4*10GE SFP+	48*GE RJ45+ 4*10GE SFP+	24*GE RJ45 (POE/POE+) + 4*10GE SFP+	48*GE RJ45 (POE/POE+) + 4*10GE SFP+	24*GE SFP+ 4*10GE SFP+
<b>Expansion Card</b>	NA				
<b>Management Port</b>	1 GE MNG, 1 RJ45 Console, 1 Mini USB Console				
<b>Maximum Weight in Full Configuration</b>	6.2kg	6.7kg	7.7kg	7.8kg	7.5kg
<b>Dimensions (H*W* D) mm</b>	43.6x442x440				
<b>Power Type</b>	AC 1+1 / DC 1+1 / HVDC 1+1				
<b>AC Power Supply</b>	Rated voltages: 100V-240V, 50Hz-60Hz Maximum voltages: 90V-286V, 45Hz-66Hz				
<b>DC Power Supply</b>	-48V±20%				
<b>HVDC Power Supply</b>	240V/336V	240V/336V	240V/336V	240V/336V	240V/336V
<b>Redundant Power Input</b>	Y	Y	Y	Y	Y
<b>Dying Gasp (AC Power)</b>	Y	Y	Y	Y	Y
<b>Max Consumption</b>	70W	84W	800W (PoE: 720W)	1050W (PoE: 960 W)	76W
<b>Typical Power Consumption</b>	30W	39W	42W	49W	38W
<b>Sactive/Standby Redundancy and Switchover</b>	Y	Y	Y	Y	Y
<b>Operating Temperature</b>	-10°C to +55°C (short-term); -10°C to +50°C (long-term)				
<b>Storage Temperature</b>	-45°C to +70°C				
<b>Relative Humidity (Non-condensing)</b>	5% - 95%				
<b>Lightning Protection Circuit Design</b>	Y	Y	Y	Y	Y
<b>Hot Swapping</b>	Y	Y	Y	Y	Y
<b>MTBF/MTTR</b>	>400,000 hours/<30 minutes				
<b>Working Altitude</b>	2KM	5KM	2KM	2KM	2KM



# ZXR10 5950-L Series

## Full Gigabit Intelligent Routing Switches

### Technical Specification-Performance

	5950-28TD-L	5950-52TD-L	5950-28PD-L	5950-52PD-L	5950-28SD-L
<b>CPU Frequency</b>	Dual-core 800MHz	Dual-core 800MHz	Dual-core 800MHz	Dual-core 800MHz	Dual-core 800MHz
<b>Memory Size</b>	2G Bytes	2G Bytes	2G Bytes	2G Bytes	2G Bytes
<b>Flash Size</b>	512 MBytes	512 MBytes	512 MBytes	512 MBytes	512 MBytes
<b>Switching Capacity</b>	128Gbps	176Gbps	128Gbps	176Gbps	128Gbps
<b>Packet Forwarding Rate</b>	96Mpps	132Mpps	96Mpps	132Mpps	96Mpps
<b>MAC Table</b>	16K				
<b>Host Routing Table Capacity</b>	32K/32K (IPv4/IPv6)	Host routing table capacity	32K/32K (IPv4/IPv6)	Host routing table capacity	32K/32K (IPv4/IPv6)
<b>Subnetwork Routing Table Capacity</b>	10K/3K (IPv4/IPv6 )	Subnetwork routing table capacity	10K/3K (IPv4/IPv6 )	Subnetwork routing table capacity	10K/3K (IPv4/IPv6 )
<b>VLAN</b>	4K	4K	4K	4K	4K
<b>Packet Buffering Capacity</b>	1.5M	1.5M	1.5M	1.5M	1.5M
<b>Number of Community Ports</b>	16/pVlan	16/pVlan	16/pVlan	16/pVlan	16/pVlan
<b>Queue-Based Maximum Bandwidth Guarantee</b>	Y	Y	Y	Y	Y
<b>Port Bandwidth Limit</b>	Y	Y	Y	Y	Y
<b>Number of PVLANS</b>	256	256	256	256	256
<b>ACL-Based SVLAN</b>	Y	Y	Y	Y	Y
<b>QoS and ACL Policies for SVLAN-Enabled Port</b>	Y	Y	Y	Y	Y
<b>ACL Filtering for Multicast Traffic</b>	Y	Y	Y	Y	Y
<b>Rate Limiting Error (Accuracy)</b>	<5%	<5%	<5%	<5%	<5%
<b>Rate Limiting Granularity of Ingress Port</b>	1G:10kbps 10G:100kbps	1G:10kbps 10G:100kbps	1G:10kbps 10G:100kbps	1G:10kbps 10G:100kbps	1G:10kbps 10G:100kbps
<b>Number of QoS Queues</b>	8/PORT	8/PORT	8/PORT	8/PORT	8/PORT
<b>IEEE 802.3x Full-Duplex Traffic Control Protocol</b>	Y	Y	Y	Y	Y
<b>Number of ARP Entries(Static/Dynamic)</b>	8K	8K	8K	8K	8K
<b>Number of Permanent ARP Entries</b>	5K	5K	5K	5K	5K
<b>Route Entry</b>	10k/3k(IPv4/IPv6)	10k/3k(IPv4/IPv6)	10k/3k(IPv4/IPv6)	10k/3k(IPv4/IPv6)	10k/3k(IPv4/IPv6)



# ZXR10 5950-L Series

## Full Gigabit Intelligent Routing Switches

### Service Specification

Function	The ZXR10 5950-L Series Switch
L2 Features	<ul style="list-style-type: none"> <li>• IEEE 802.1p (COS) and IEEE 802.1q (VLAN);</li> <li>• IEEE 802.1d (STP)/ 802.1w (RSTP)/ 802.1s (MSTP);</li> <li>• IEEE 802.3ad (LACP);</li> <li>• IEEE 802.3z (1000Base-X) / 802.3ab (1000BaseT);</li> <li>• IEEE 802.3ae (10Gbase);</li> <li>• IEEE 802.3ba (40Gbase);</li> <li>• QinQ, Selective QinQ;</li> <li>• Port mirroring and traffic mirroring;</li> <li>• PVLAN;</li> <li>• GVRP;</li> <li>• LLDP</li> </ul>
L3 Features	<ul style="list-style-type: none"> <li>• IPv4 routing protocols, such as static routing, policy based routing, RIP, OSPF, BGP, and IS-IS;</li> <li>• DHCP server/ relay/proxy, DHCP snooping;</li> <li>• IPv6 routing protocols, such as static routing, policy based routing, RIPng, OSPFv3, IS-ISv6, and BGP4+</li> </ul>
Multicast	<ul style="list-style-type: none"> <li>• IGMP v1/v2/v3, IGMPv1/v2/v3 snooping;</li> <li>• PIM-SM, PIM-DM, PIM-SSM;</li> <li>• Administratively scoped multicast/ IPTV, MVR;</li> <li>• MLD v1/v2, MLD snooping, PIMv6</li> </ul>
QoS	<ul style="list-style-type: none"> <li>• Traffic classification based on Layer 2 headers, Layer 3 protocols, Layer 4 protocols, and 802.1p priority;</li> <li>• 8 hardware-based queues per port;</li> <li>• Queue scheduling algorithms, such as SP, WRR, DWRR, SP+WRR;</li> <li>• Congestion avoidance mechanisms, such as WRED and tail drop;</li> <li>• Support policing/shaping based on port</li> </ul>
PoE	<ul style="list-style-type: none"> <li>• PoE (IEEE 802.3 af);</li> <li>• PoE+ (IEEE 802.3 at)</li> </ul>
Security	<ul style="list-style-type: none"> <li>• L2-L4 ACL;</li> <li>• Standard ACL, MAC ACL, L2 ACL, extended ACL, mixed ACL, VLAN ACL;</li> <li>• Time-period ACL configuration, bidirectional ACL;</li> <li>• 802.1x authentication and 802.1x server;</li> <li>• MAC authentication; AAA/ RADIUS and TACACS+ authentication for login users;</li> <li>• SSH v1.0/v2.0 server; CPU anti-attack;</li> <li>• STP root guard, BPDU GUARD;</li> <li>• URPF;</li> <li>• RIP/OSPF/BGP MD5 encryption checking</li> </ul>
Reliability	<ul style="list-style-type: none"> <li>• 1+1 redundancy power supply;</li> <li>• Hot plugging;</li> <li>• LACP support ZESR/ZESR+ (ZTE Ethernet Switch Ring);</li> <li>• ERPS;</li> <li>• VRRP, VRRPv3, VRRPE;</li> <li>• GR for OSPF/BGP/IS-IS</li> </ul>
Device Management	<ul style="list-style-type: none"> <li>• CLI, Telnet, SSH, Local and remote (Radius/Tacacs+) authentication of user;</li> <li>• SNMP v1/v2/v3;</li> <li>• Mirroring;</li> <li>• RMON;</li> <li>• Support NTP;</li> <li>• Syslog, sFlow</li> </ul>
Enhanced Features	<ul style="list-style-type: none"> <li>• M-BUTTON;</li> <li>• Zero-touch deployment</li> </ul>



# ZXR10 5950-L Series

## Full Gigabit Intelligent Routing Switches

## Ordering Information

### • Mainframes

ZXR10 5950-28TD-L	ZXR10 5950-28TD-L Switch (2*Power Supply Module)
ZXR10 5950-52TD-L	ZXR10 5950-52TD-L Switch (2*Power Supply Module)
ZXR10 5950-28PD-L	ZXR10 5950-28PD-LSwitch (1* Fan Module, 2*Power Supply Module) (PoE/PoE+)
ZXR10 5950-52PD-L	ZXR10 5950-52PD-L Switch (1* Fan Module, 2*Power Supply Module) (PoE/PoE+)
ZXR10 5950-28SD-L	ZXR10 5950-28SD-L Switch(1* Fan Module, 2*Power Supply Module)

### • Power Modules

59-PWR-AC50	ZXR10 5950-PD-L AC/HVDC Power Module
59-PWR-DC50	ZXR10 5950-PD-L DC Power Module
59-PWR-AC20	ZXR10 5950-SD-L AC/HVDC Power Module
59-PWR-DC20	ZXR10 5950-SD-L DC Power Module
59-PWR-AC10	ZXR10 5950-TD-L AC/HVDC Power Module
59-PWR-DC10	ZXR10 5950-TD-L DC Power Module

### • Fan Module

59-FAN	ZXR10 5950 Fan Module
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