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Optimizing Gigabits Ethernet Flawless

---ZTE ZXR10 5950-H Series All Gigabits Intelligent
Routing Switch

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Overview

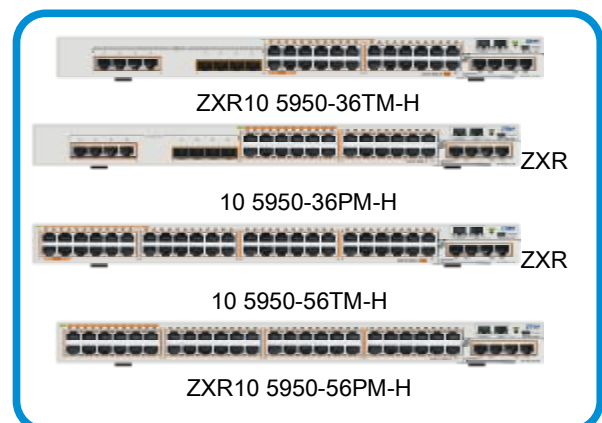
ZXR10 5950-H series All Gigabit Intelligent Routing Switches are L3 gigabit box switches presented by ZTE Corporation. 5950-H series switches provide high-density Gigabit access interfaces and 10Gigabit uplink interfaces, comprehensive L2 switching and L3 routing capabilities, and abundant security and reliability related features. 5950-H series switches support VSC and POE; they can be applied in multiple scenarios including campus access and aggregation, IDC gigabit access, bringing big-bandwidth and reliable solution for enterprise or campus users.

ZXR10 5950-H offers the following switch types:

5950-36TM-H, 5950-36PM-H, 5950-56TM-H and 5950-56PM-H.

The interfaces offered by these switches are listed below:

- 5950-36TM-H: 24*GE RJ45+4*GE Combo+2* expansion slot
- 5950-36PM-H: 24*GE RJ45+4*GE Combo+2* expansion slot, the electrical interfaces support POE, while some interfaces support DUAL POE+.
- 5950-56TM-H: 48*GE RJ45+2*expansion slot
- 5950-56PM-H: 48*GE RJ45+2*expansion slot, the electrical interfaces support POE, while some interfaces support DUAL POE+



The expansion card slot can be equipped with the following types of expansion cards:

- 4*10GE-SFP+expansion card
- 4*1GE-SFP expansion card
- 4*1GE expansion card
- 2*40G mini SAS stacking card.

Features

- Full Service Support

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- 5950-H series switches support full L2 switching technologies, including PVLAN, protocol-based VLAN, QinQ and VLAN translation, helping user to implement service identification and separation.
- L3 routing protocols including static routing, RIP, OSPF, IS-IS and BGP are all supported.
- Multicast-based technologies like video-surveillance, videoconference are becoming more and more popular these days. ZXR10 5950-H fully supports L2/L3 multicast, including IGMP snooping, Filtering, Proxy and Fast-leave, MVR (Multicast VLAN Registration) and PIM-SM to facilitate deployment of these services.
- 5950-H supports UDF(user define forwarding) table, which allows flexibility in configuration such that the user can allocate more resources for a table requiring comparably more entries ,for example ,one configuration may have a large L2 mac table and a small L3 host route table ,another configuration may have a large L3 host table and a small L2 mac table ,the shared entry can reach 176K ,and can be flexibly partitioned.

• **Enhanced Security**

- ZXR10 5950-H supports diversified mechanisms to guarantee the security of the network:
- CPU DDOS protection capability helps the equipment to mitigate the influence caused by attacks, while the equipment itself won't be brought down, which ensures high network stability.
- Hardware based ACL for filtering and traffic control purpose.
- DAI (Dynamic ARP inspection) function and IP/MAC binding help prevent against DOS (Denial of Service) attacks.
- Spanning tree protection (Root guard), BPDU protection, ARP attack protection and broadcast storm protection.
- URPF (unicast reverse path forwarding) to prevent source-spoofing attack.

• **Enhanced Reliability**

- With UDLD (uni-Directional Link Detection), uni-directional link failure caused by wiring mistake or port failure can be detected.
- Loop detection allows the switch to detect possible loops without the need to enable STP.
- When deployed in layer 2 environment, ZESR/ZESR+ (ZTE Ethernet Smart Ring) and ZESS (ZTE Ethernet Smart Switching) can be used to implement fast switchover in case of single point failure.
- ZXR10 5950-H supports both close ring ZESR and open ring ZESR+, which are very good network redundancy solutions in ring topology networks.
- ZESS is a very simple yet effective means to realize dual-homing purpose.

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- Compared with STP, the biggest advantage is that the link will switch and recover quickly when one way is disconnected and the time needed for switchover is less than 50ms. ZESR/ZESR+ support VLAN load balancing to enable efficient utilization of redundant links.

- **Virtual Switch Clustering(VSC)**
 - ZXR10 5950-H supports Virtual Switch Clustering (VSC), which means the virtualization of multiple physical switches into one logical switch. VSC enhances cluster system capacity and port density, and at the same time simplifies simple topology and eases administration. Network extensibility is enhanced for user can freely increase the capacity of a single logical network node. N+1 redundancy for the master switch help avoid single-point failure and reduces service breakdown.
 - Access interfaces from different member switches can be used to form a logical smart-group, fully leveraging the capacity of each single switch member, and increasing the flexibility of network design.

- **Intelligent Power Over Ethernet**
 - All the electrical access interfaces of ZXR10 5950-36PM-H and 5950-56PM-H support POE and POE+, which go in line with 802.3af and 802.3at standards, and are compatible with PD equipments that doesn't support 802.3af and 802.3at. Each POE interface can provide 30 watt POE power output, some interfaces can provide dual channel maximally 60 watt POE power output, fulfilling the requirement of big-power consumption PD equipment, like the out-door LED displaying panel.
 - POE provides a lower total cost of ownership (TCO) for employments that incorporate IP phones, wireless LAN (WLAN) access points, or any IEEE 802.3af-compliant end device. POE removes the need to connect power cable to each POE-enabled device and eliminates the cost of additional electrical cabling and circuits, bringing great convenience in the "Internet of things" age.
 - ZXR10 5950-H supports assigning time-ranges for POE, in time periods that doesn't need power output, the POE function can be turned off, saving energy for the customer. During the time when power output is unnecessary, the POE function can be turned off to save energy for the customer.

- **Easy-Maintenance**
 - With innovative "easy-maintenance" concept incorporated in every detail of the design, ZXR10 5950-H brings ultimate efficiency and simplicity for the maintenance routines, cutting down the operating costs of the network through simple yet efficient methods.
 - The innovative M-Button function enables the manager to fetch important equipment information including port/memory/CPU status in case of network problems by reading the interface indicators, enabling instant trouble-shooting, and thus reducing OPEX to the utmost extent by shrinking

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network downtime. M-button adds no more investments; only extra meanings are endowed to the status of the interface indicators.

- ZXR10 5950-H supports Zero Configuration, which means the switch can automatically download software images and start-up configurations. Zero configuration truly enables plug and play and reduces the requirement for experienced engineers.

Technical Specification

Function and Parameters		5950-36TM-H	5950-56TM-H	5950-36PM-H	5950-56PM-H
Interface Combination	Fixed	24 GE RJ45+4 GE Combo	48 GE RJ45	24 GE RJ45+4 GE Combo	48 GE RJ45
	Sub card(Number of Sub slots*Type of sub card)	2 sub card slot with 4*10GE-SFP+expansion card 4*1GE-SFP expansion card 4*1GE-RJ45 expansion card 2*40G mini SAS stacking card			
Basic Parameters	Switching Capacity	296Gbps	336Gbps	296Gbps	336Gbps
	Packet Forwarding Rate	222Mpps	252Mpps	222Mpps	252Mpps
	Default Route table (host route number +subnet route number)	16K/8K(IPv4/IPv6)+12K/6K(IPv4/IPv6)			
	Default MAC table Depth	128K			
Features	L2 Features	IEEE 802.1q VLAN,IEEE 802.1p,IEEE 802.3ad, STP,RSTP,MSTP, Selective QinQ, VLAN translation, VLAN,DHCP Snooping,802.1x, GVRP			
	L3 Features	Static routing, RIP, OSPF, ISIS, BGP			
	Multicast	Administratively scoped multicast/IPTV, MVR, IGMP V1/V2/ V3 Snooping, Filtering, Proxy and Fast Leave, PIM-SM,MSDP			
	QoS	Marking, modification of QoS priority and mapping between 802.1p,IP DSCP. 8 hardware-based queues per port, SP,WRR,SP+WRR queue scheduling mechanisms, Policing/shaping based on port/flow, Congestion avoidance mechanisms including WRED and Tail-Drop			
	Security	CPU anti-attack, CPU overload protection, Broadcast/Multicast/unknown Unicast			



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Function and Parameters		5950-36TM-H	5950-56TM-H	5950-36PM-H	5950-56PM-H
		suppression, STP Root Guard, BPDU guard, uRPF ,RIP/OSPF/BGP MD5 encryption checking, IP source Guard, Dynamic ARP Inspection			
	Reliability	LACP,MC-LAG,ZESS,ZESR/ZESR+,VRRP			
	Enhanced Features	VSC, M-BUTTON, Zero-Configuration	VSC, M-BUTTON, Zero-Configuration	VSC, M-BUTTON, Zero-Configuration, POE/POE+	VSC, M-BUTTON, Zero-Configuration, POE/POE+
Equipment Management	Equipment Management	RS232 Console (RJ45),Ethernet management port, CLI, Telnet, SSH, FTP, TFTP,Local and remote(Radius/Tacacs+)authentication of user, Web management, SNMPv1/v2/v3,DHCP Client,SNMP, NetNumen U31,Cluster Management(ZGMP),RS232 Console (RJ45) ,ZTE Group Management Protocol (ZGMP) ,NTP/SYSLOG/RMON,SFLOW			
Physical Parameters	Dimensions (H*W*D)	44mm*442mm*440mm	44mm*442mm*440mm	44mm*442mm*440mm	44mm*442mm*440mm
	Maximum Weight	8.3kg	8.4kg	9kg	9.2kg
	DC power supply	-38V~57V	-38V~57V	-	
	AC power supply	100V~240V, 50Hz~60Hz	100V~240V, 50Hz~60Hz	100V~240V, 50Hz~60Hz	100V~240V, 50Hz~60Hz
	Maximum power consumption	87W	92w	929w (POE power output 840W, system power consumption 89W)	1036w (POE power output 940W, system power consumption 96W)
	Power redundancy pattern	Two independent and swappable power supply module, support AC 1+1, DC 1:1, mixed AC DC 1:1			
	Heat dissipation pattern	Fan cooling			
	Heat dissipation	98 BTU/h	108 BTU/h	180 BTU/h	214 BTU/h
	Temperature, humidity	Working temperature:-5℃ ~+45℃ ,humidity:10%~90%			
	Working altitude	<5000 meters			

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Function and Parameters	5950-36TM-H	5950-56TM-H	5950-36PM-H	5950-56PM-H
MTBF/MTTR	>400000 hours/ < 30 minutes			

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