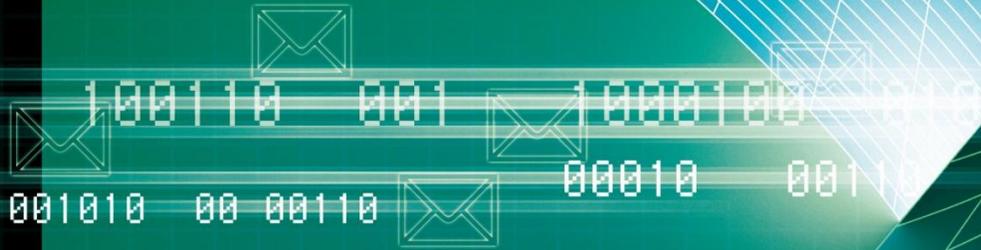# ZXR10 5960 Series All 10Gigabit Switch

Overview

ZXR10 5960 series all 10Gigabit switches are box-like layer 3 10Gig MPLS routing switches that deliver ultra-big switching capacity, carrier-class reliability and superior scalability.

With support to abundant Datacenter related features including virtual switching and lossless Ethernet, 1RU height and optional back-to-front/front-to-back airflow, ZXR10 5960 is suitable to act as a Datacenter TOR.

Featuring full L2/L3/MPLS capability, ZXR10 5960 is also a good choice for 10Gig aggregation purpose in campus networks, especially in space-constrained environments.

Currently ZXR10 5960 includes two switch types: 5960-32DL and 5960-64DL. The interfaces offered by these two switches are listed below:

ZXR10 5960 Series all 10Gigabit Switches

ZXR10 5960-32DL

ZXR10 5960-64DL

5960-32DL: 24*10GE SFP+ +2*40GE QSFP+

5960-64DL: 48*10GE SFP+ +4*40GE QSFP+

Innovative Features

High-Density 10Gig Interface Box

ZXR10 5960-32DL can provide at most 32 10Gig interfaces and 640Gbps throughput, while ZXR10 5960-64DL can provide at most 64 10Gig interfaces and 1.28Tbps throughput.

With such strong switching capacity and high-density 10G interfaces, it enables the deployment of large amount of servers with 10 interfaces. With ZXR10 5960, high-density 10Gig aggregation can also be achieved in campus network/enterprise network.

Scalable Uplink Interface Card

ZXR10 5960 supports 40Gig uplink interfaces; 5960-32DL can provide at most 2 40Gig QSFP+ interfaces, while 5960-64DL can provide at most 4 40Gig QSFP+ interfaces. Each 40Gig interface can be optionally configured as 4 10Gig interfaces.

Full Service Support

ZXR10 5960 supports diversified VLAN features, including Port-based VLAN, Subnet VLAN, Protocol-based VLAN, Selective QinQ and VLAN translation in order to separate/distinguish different users' different services in different scenarios.

ZXR10 5960 supports Voice VLAN (which means the automatic assignment of dedicated VLAN and QoS strategy to voice equipment), thus enabling the voice traffic to enjoy high priority.

Multicast-based technologies like video surveillance/tele-presence are important services for Enterprise users nowadays. ZXR10 5960 fully supports L2/L3 multicast, including IGMP snooping, Filtering, Proxy and Fast-leave, MVR (Multicast VLAN Registration) and PIM-SM to facilitate the deployment of these services.

ZXR10 5960 fully supports MPLS L2/L3 VPN, providing an economical reliable VPN solution for commercial uses.

ZXR10 5960 also supports MCE, enabling it to run multiple VPN instances without running MPLS, and relieving the pressure on PE (provider edge) equipment.

Full Data Center Features

ZXR10 5960 supports multiple EVB (Ethernet Virtual Bridging) patterns including VM, VEB and VEPA (Virtual Ethernet Port aggregator), and these different patterns can coexist, so it can fulfill different networking requirements. With full support for related protocols like VDP, EDCP and CDCP, EVB can run smoothly.

ZXR10 5960 supports abundant lossless Ethernet features:

ZXR10 5960 supports DCTCP (Data Center TCP), which helps relieve the congestion problem caused by TCP transmission mechanism and promotes end-to-end performance;

ZXR10 5960 supports PFC (Priority-based Flow Control), which enables the switch to implement queue-based traffic control, so as to avoid packet loss caused by port-based traffic control;

ZXR10 5960 supports QCN (Quantized Congestion Notification), which enables the switch to send/relay the congestion message all the way to the source node in the network, so as to relieve congestion from the root.

ZXR10 5960 supports ETS (Enhanced Transmission Selection), which is the optimal model for bandwidth allocation and priority manipulation in Datacenter Scenario.

ZXR10 5960 supports DCBX (Data Center Bridging Exchange), which allows the switch to negotiate with the peer about their DCB capabilities.

Industrial-Grade Reliability and Security

ZXR10 5960 adopts dual redundant modular fan and dual modular power supply design.

ZXR10 5960 supports software image backup, promoting the capability to recover from disaster and failures.

ZXR10 5960 supports diversified mechanisms to guarantee the security of the network:

CPU DDOS protection capability helps the equipment to mitigate the influence caused by attacks. The equipment itself won't be brought down, which can maintain high network stability.

DAI (Dynamic ARP inspection) function and IP/MAC binding help prevent against DOS (Denial of Service) attacks.

With ZESR (ZTE Ethernet Smart Ring) and ZESS (ZTE Ethernet Smart Switch) capabilities, ZXR10 5960 can provide resilient solutions in ring topology and dual-homing topology networks, while the time for switchover can be less than 50ms. Due to the multi-instance capability, the network bandwidth can be used most effectively.

ZXR10 5960 supports MC-LAG (multi-chassis link aggregation), providing another dual-homing method while posing no extra requirements to peer devices.

Easy-Maintenance

The direction of 5960's airflow can be adjusted by using different fan modules. Users can select back-to-front airflow or front-to-back airflow at will, which is especially useful in Data Center networking scenario. Holes for ventilation purpose located on side panels/ and front/rear panels help the air flows to move more smoothly.

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

ZXR10 5960 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.

ZXR10 5960 supports ALS (Automatic Laser Shutdown), protecting equipment administrator against laser injury and saving energy at the same time.

Green and Energy Efficient

ZXR10 5960 adopts the advanced chip technology, so the power consumption of the main chip can be dramatically reduced.

More holes in the front panel for airflow enhance heat dissipation.

Low-noise fan is adopted for ZXR10 5960, making it user-friendly and energy efficient at the same time; multi-level fan speed adjustment is available.

The materials used during the life span of 5960 completely meet RoHS standards.

Technical Specification

Functions and Parameters		5960-32DL	5960-64DL
Interface Combination	Fixed interfaces	24 10GE SFP+ ports +2 40GE QSFP+ ports(8 extended 10GE SFP+ ports)	48 10GE SFP+ ports +4 40GE QSFP+ ports(16 extended 10GE SFP+ ports)
Basic Parameters	Backplane Capacity	2Tbps	2TGbps
	Switching Capacity	640Gbps	1.28Tbps
	Packet Forwarding Rate	480Mpps	960Mpps
	Route table Depth(host route number +subnet route number)	16K+16K	
	MAC table Depth	128K	
Features	L2 Features	IEEE 802.1q VLAN,IEEE 802.1p,IEEE 802.3ad, IEEE 802.3,IEEE 802.3z, STP,RSTP,MSTP, Selective QinQ, VLAN translation, PVLAN,DHCP Snooping, 802.1x	
	L3 Features	Static routing, RIP, OSPF, ISIS, BGP,MCE	
	MPLS	LDP,MPLS TE,VPLS,VPWS,H-VPLS,MPLS L3 VPN,CE Dual-homing Protection	
	Multicast	Administratively scoped multicast/IPTV, MVR, IGMP,IGMP Snooping, Filtering, Proxy and Fast Leave, PIM-DM,PIM-SM,MSDP	

	QoS	Marking, modification of Qos priority and mapping between 802.1p, IP DSCP. 8 hardware-based unicast queues and 4 multicast queues per port, SP,WRR/DWRR,SP+WRR,CBWFQ queue scheduling mechanisms,3-tier queue scheduling , 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 suppression, STP Root Guard, BPDU guard, uRPF, RIP/OSPF/BGP MD5 encryption checking, IP source Guard, DAI, Bidirectional ACL	
	Reliability	LACP,MC-LAG，ZESS,ZESR/ZESR+,VRRP,BFD	
	Enhanced Features	MFF,M-BUTTON,Zero-Configuration,802.1ag,802.3ah,Y.1731,802.1qbg,DCTCP,QCN,PFC,ETS,DCBX	
Equipment Management	Equipment Management	RS232 Console (RJ45),USB console, Ethernet management port, CLI, Telnet, SSH, Local and remote(Radius/Tacacs+)authentication of user, Web management, SNMP, NetNumen U31, Cluster Management(ZGMP)	
Physical Parameters	Dimensions (H*W*D)	43.6mm*442mm*440mm	43.6mm*442mm*440mm
	Maximum Weight	7.6kg	8kg
	DC power supply	-48V	-48V
	AC power supply	100V~240V, 50Hz~60Hz	100V~240V, 50Hz~60Hz
	Maximum power consumption	265W	345W
	Typical power consumption	120W	160W
	Power redundancy pattern	Two independent and swappable power supply modules	
	Heat dissipation pattern	Fan cooling(Front-to-Rear/Rear-to-Front flow)	Fan cooling(Front-to-Rear/Rear-to-Front flow)

ZTE中兴

	Heat dissipation	741 BTU/h	965 BTU/h
	Temperature, humidity	Working temperature:-5°C ~+45°C,humidity:20%~90%	
	Working altitude	<4000 meters	
	MTBF/MTTR	> 300000 hours/ < 30 minutes	

ZTE中兴