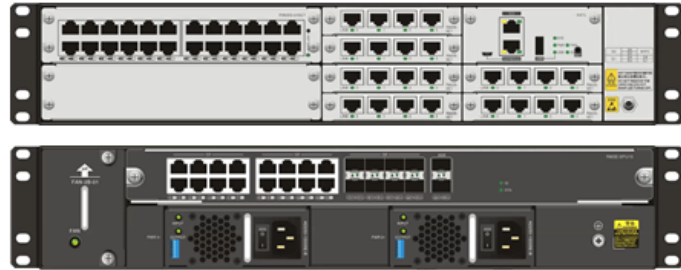


TSR-8000 Series

Next Generation Core Series Router



Product Overview

Techroutes TSR-8000 series is the Next-generation Multi Service Switching Router platform, designed for growing customer requirement of real time applications and high bandwidth requirement. The router platform designed with multi-core MIPS processor with Gigabit Switching integration so that it can give excellent performance up to 8 Mpps.

The Router comes with USB, SFP, HIC and HIM Slots with a wide range of Modules to achieve user specific interface options. To cater different networking requirements of government, financial institutions, military, enterprises or operators.

Powerful Performance

TSR-8000 series is driven by the multi core processor, the gigabit ASIC switching chip and FPGA components, enabling the whole hardware platform of the router to run on the hi-speed Ethernet frame. This innovative design attributes TSR with an inherent extra powerful processing ability, to enhance the upper-layer software functions.

Strong expandability

Because built on the basis of switching core, TSR-8000 series routers can expand their external interfaces, slots and modules without any limitation from the total CPU resources. The switching chip guarantees that the whole TSR-8000 series router is provided with sufficient and broadband internal channels, making the expandability of TSR routers exceed that of traditional modularized routers.

Excellent power-saving ability

TSR-8000 series routers adopt the new-generation hardware chip which can guarantee the powerful processing ability and meanwhile save power. The power consumption of a whole TSR router is reduced by 15% to 20% compared with the mainstream devices in this industry. The long-term users can save the maintenance cost, which carries out the nationally advocated low-carbon idea. Additionally, TSR-8000 series also supports redundant power sources.

Various protocols Support

This series supports the link-layer protocols such as FR, PPP, ISDN and HDLC, and dynamic routing protocols including RIP, OSPF, BGP, ISIS, the static route and policy based routing, so this series can interconnect with any industry standard products. Further more, this series supports the integration of multiple services like routing, switching, voice, security and wireless, so they can meet the requirements of complicated network establishment.

New services

The MPLS characteristics, and the MPLS-based layer-2/ layer-3 VPN technology are supported so that the transparent Ethernet transmission service and the flexible enterprise interconnection are achieved. IPv6 data forwarding, routing protocols and multicast routing protocols are all supported; also the IPv4/IPv6 protocol stack and the interconnection technology are supported, so the existing networks can be smoothly upgraded to the IPv6 networks.

High security

This series supports flexible ACL, firewall filtration technology, NAT, multiple VPN technologies such as IPSec/L2TP/PPTP/GRE, and multiple security methods such as AAA, Radius, TACACS+, PAP and CHAP.

Traffic management policy

Various QoS mechanism are supported such as FIFO, PQ, CQ, CBWFQ, LLQ, WFQ, RED, WRED, DSCP, IP Precedence, RTS, RSVP and CAR, so key services can be guaranteed with a reliable bandwidth and users' bandwidth will be utilized more efficiently.

Flexible management and maintenance

This series provides a lot of in-band and out-band management tools such as Console and Telnet, SNMP, RMON, Syslog, etc. so the management and monitoring of network can be efficient.

Technical Specification :

Hardware Specification	TSR-8000-Series			
Processor	Multi Core Processor			
USB 2.0 Port	1			
Console Port (RJ45)	1			
Micro USB Port	1			
Router Service Engine Module	RSE03	RSE05	RSE10	RSE40
Fixed WAN Interface	2xGE Combo (Tx/SFP)+1xGE-SFP	16xGE-Tx+8xGE-SFP	16xGE-Tx+8xGE-SFP+2x10G-SFP+	4xGE Combo (Tx/SFP)+4xGE-Tx+4xGE-SFP+4x10G-SFP+
Memory	2G	2G	4G	4G
Flash	8G	8G	8G	8G
Forwarding Rate	8M	8M	16M	40M
Router Service Engine (RSE) Slot	1			
Service Slots	6xHIC & 2xHIM Slots			
FAN Slots	1			
Dual Flash & Monitor	Support			
Specifications	19-inch standard cabinet and 2U chassis			
Dimension (W * D * H mm)	442*365*88.2			
Temperature/Humidity	Working temperature and humidity		0° C -45° C; 5%-85% no condensation	
	Storage temperature and humidity		-40° C-70° C; 5%-85% no condensation	
Power characteristics	AC voltage		100~240V @ 47~63Hz	
	Power Redundancy		2 Power Slots	
	Power Consumption		< 250W	
Link interconnection	LAN protocols		IGMP Snooping, GVRP	
			IEEE802.3ad LACP Link aggregation	
			Dynamic and static ARP, proxy ARP, free ARP	
			Ethernet, Ethernet II, VLAN (VLAN-BASED PORT VLAN, VOICE VLAN, Guest VLAN), 802.3x, 802.1p, 802.1Q, 802.1x	
			STP/RSTP/MSTP	
			Broadcast storm suppression	
			Port mirroring	
	WAN protocols		HDLC	

		PPP, MLPP, support LCP/PAP/CHAP negotiation functions
		FR, MFR
		Virtual Ethernet bridge
		Bridging
		PPPoE Client
Network protocols	Routing Protocols	Static route, directly-connected route and default route
		RIPv1/v2, OSPFv2, BGPv4, IS-IS, IRTR (Compatible with EIGRP)
		PBR policy-based routing
		ECMP, Recursive Route Load-Balance
	Multicast routing	IGMP V1/V2/V3, IGMP Snooping
		PIM-DM, PIM-SM, PM-SDM, PM-SSM, DVMRP, MSDP
	IP function	ICMP, TCP, UDP, IP Option
		NAT, PAT, Port-MAP, Private-Service, ALG
		Ping, Trace Route, NS Lookup
		FTP Server, FTP Client
		DHCP Client/Server/Relay
		DNS, DNS host, DNS Proxy, DDNS
		Helper-Address, UDP Helper
		IP unnumbered, DDR
		IP Accounting
		UDP Helper
		NTP
	MPLS	AToM, VPLS, MP-BGP, VRF
		L2VPN, L3VPN
		MPLS TE
		MPLS Multicast, MPLS OAM, MPLS Ping, MPLS Traceroute
	IPv6	IPv6 ND, IPv6 PMTU, IPv6 FIB, IPv6 ACL (Passing Phase II authentication)
		IPv6 transition: NAT-PT, IPv6 tunnel
		IPv6 tunnel: manual tunnel, automatic tunnel, GRE tunnel, 6to4, ISATAP
		IPv6 route: IPv6 static route, RIPng, OSPFv3, BGP4+
Reliability	Backup function	Support BFD for BGP/IS-IS/OSPF/RSVP/VPLS PW/VRRP
		Support Keep alive Gateway
		Support interface backup mode
		Support VRRP

		Support bandwidth-based load bearing and backup
		Support the flow-based load balance and backup, Support IP FRR, TE FRR
	BFD cooperative work	Supporting the rapid link detection of BFD and working together with RIP, OSPF, BGP, MPLS and VRRP to realize the fast switchover of route and link
QoS	Congestion control	FIFO, PQ, CQ, WFQ, CBWFQ
	Congestion avoidance	WRED/RED
	Flow shaping	Support GTS (Generic Traffic Shaping)
	Reservation	RSVP
	Others	H-QoS, Ethernet sub interface QoS, MPLS QoS
	Flow classification	Support the classification of Ports
		Support the classification of MAC addresses
		Support the classification of IP Address
		Support the classification of the IP Precedence flows
		Support the classification of DSCP flows
		Support the classification of TCP/UDP Ports
		Support the classification of Protocol Type
		Support the 802.1P classification
Network security	AAA	Authentication, Authorization, Accounting
		Support Local, Radius, Tacacs+
		Portal Authentication
		802.1x Authentication
		MAC Authentication
	Firewall	Standard IP ACL, extended IP ACL, standard MAC ACL, Ethernet protocol ACL, Reflexive ACL
		Control Plane protect, URPF
		Packet filter, status detection, unreasonable IP fragment filter, too-small packet filter, false source address detection

		ICMP Flood interception, Smurf attack interception, Fraggle attack interception, LAND attack interception, SYN Flood attack interception
		Traffic Control, URL Filter
	VPN	IKE,IPSec,RSA
		L2TP,GRE
Management and maintenance	Network management	SNMP v1,v2,v3/MIB/SYSLOG/RMON/Net Flow, IPFIX
	Local management	Console Port Login Management, AUX Port Login Management, Telnet (VTY),Remote Management, SSH Management, Web Management
	Network Quality Management	Support DHCP, FTP, HTTP, ICMP, UDP public, UDP private, TCP public, TCP private, SNMP protocol test, Support voice jitter test, Support network delay, jitter, packet loss rate test

Ordering Information

TSR-8000 Series Chassis	
TSR-8000-Series	TSR-8000 Series Chassis, 2U height, 1 Console Port, 1 USB Port, 1 Service Engine , 6 HIC Slots, 2 HIM Slots, 2 Power Slots, 1 Fan Slot.
Host model	
RSE03	Service Engine, integrate 2xGE Combo (Tx/SFP) + 1xGE-SFP Ports
RSE05	Service Engine, integrate 16xGE -Tx + 8xGE-SFP Ports
RSE10	Service Engine, integrate 16xGE-Tx + 8xGE-SFP+2x10GE-SFP+ Ports
RSE40	Service Engine, integrate 4xGE Combo (Tx/SFP)+4xGE-Tx+4xGE-SFP+4x10G SFP+
PWR-250W-AC	AC Power Module, 250W, 100-240V
PWR-500W-DC	DC Power Module, 500W, 40~57V
FAN-8000	FAN Module for TSR-8000-Series
TSR-8000 Series HIC modules	
HIC-1E1	Single-port un-channelized E1 module
HIC-4E1	Four-port un-channelized E1 module
HIC-1CE1	Single-port channelized E1 module
HIC-4CE1	Four-port channelized E1 module
HIC-1SA	Single-port high-speed V35 serial port module
HIC-2SA	Two-port high-speed V35 serial port module
HIC-1GE	Single-port Giga Ethernet module, Combo port
HIC-4GET	Four-port Giga Ethernet electric interface module
HIC-4GEF	Four-port Giga Ethernet fiber interface module
HIC-4G-LTE	Single-port LTE (4G/3G/2G) card
HIC-1POS-OC3	Single-port 155M un-channelized OC3 module
HIC-1CPOS-OC3	Single-port 155M channelized OC3 module
HIC-1POS-OC12	Single-port 622M un-channelized OC12 module
TSR-8000 Series HIM modules	
HIM-24GET-S	24-port Gigabit Ethernet electrical Switching module

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