

RT188T Switch

A cost-effective SDN Edge Switch



Product Overview

The EstiNet RT188T is an innovative switch which provides rich legacy L2 features and state-of-the-art SDN OpenFlow features. This model is equipped with 24 gigabit RJ45 ports and 4 SFP uplink ports. The switch is purposely designed for small to medium business customers who desire high performance, rich L2 protocols, advanced QoS, useful security features, powerful Access Control List function, power saving, easy management, and IPv6 support with 56Gbps forwarding capability. In addition, RT188T provides innovative SDN functions, such as switch configuration auto-provisioning, dynamic flow-based monitoring, and abnormal traffic detection, which are new features that cannot be easily supported in legacy switches.

Key Features and Benefits

Performance and Extensibility

RT188T is a high-performance gigabit web smart switch that integrates OVS OpenFlow agent. Its 56Gbps switching capacity can deliver wire-speed performance on all ports. The OpenFlow agent can connect to an SDN controller to enable a variety of flow-based SDN applications.

Rich L2 Features

RT188T supports complete L2 features, including Flow Control, STP/RSTP/MSTP, 802.1Q tag VLAN, 802.1v protocol-based VLAN, dynamic/static Link Aggregation and Multicast support. With the Multicast support, the switch provides the IGMP snooping and MLD snooping to ensure that the switch intelligently forwards the multicast frames only to the appropriate of multicast frame subscribers.

Advanced QoS

By using RT188T's advanced QoS functions, the network administrators can designate the priority of streaming services based on different QoS requirements. RT188T prioritizes delay-sensitive services such as voice and video streamings. It provides different classes of services, including port-based, flow-based, 802.1P, IP DSCP, TCP/UDP port-based.

Useful Security

RT188T provides a variety of advanced security features to safeguard your network. These security protection functions include 802.1X, RADIUS/TACACS+, HTTPS, SSL, Port Security, Storm Control, Denial-of-Service(DOS) Prevention, Dynamic ARP Inspection, IP Source Guard, etc.

Powerful Access Control List

With the powerful ACL utility, administrator can restrict sensitive portions of the network from unauthorized users and guard against network attacks. RT188T supports MAC-based ACL, IPV4-based ACL and IPV6-based ACL.

Power Saving

With built-in IEEE802.3az Energy Efficient Ethernet (EEE) feature and more innovative green feature, RT188T can reduce energy consumption through many smart automatic detection, such as Link Down Power Saving, Cable Length Power Saving, No traffic or Small traffic Power Saving.

SDN

RT188T enables the state-of-the-art SDN functions for network administrators. By collaborating with EstiNet's SDNCore controller and applications, RT188T can perform fine-grained, flow-based network management functions, such as switch configuration auto-provisioning, dynamic flow-based network traffic monitoring, and abnormal traffic detection/rejection.

OpenFlow Features

Software Specifications

- ◆ OpenFlow Specification: v1.3
- ◆ Open vSwitch: v2.1.2
- ◆ OVSDB

OpenFlow Channel

- ◆ Controller To Switch
 - Features
 - Configuration
 - Modify State
 - Read State
 - Packet Out
 - Barrier
 - Role Request
 - Asynchronous Configuration
- ◆ Asynchronous
 - Packet In
 - Flow Removed
 - Port Status
 - Error
- ◆ Symmetric
 - Hello
 - Echo
 - Experimenter

Statistics

- ◆ Per Flow
 - Receive Bytes
 - Duration
- ◆ Per Port
 - Receive Packets/Transmit Packets
 - Receive Bytes/Transmit Bytes
 - Receive Drops
 - Receive Error/Transmit Error
 - Collisions
 - Duration
 - Receive Frame Alignment Errors
 - Receive CRC Errors

Switch Capability

- ◆ Hybrid mode support:
 - Legacy
 - Legacy + SDN OpenFlow

SDN Controller Support

- ◆ OpenDaylight
- ◆ RYU
- ◆ Floodlight

Performance

- ◆ Flow Table: 1K
- ◆ Meter Table Entry Count: 150 (or higher)
- ◆ Counter Entry Count: 400 (or higher)

Actions

- ◆ Output
- ◆ Drop
- ◆ Push/Pop VLAN header
- ◆ Set IP DSCP
- ◆ Set VLAN VID/PCP

Instruction

- ◆ Meter (Switch IC Based)
- ◆ Apply-actions

Matching Field/Combination

Seven combinations for commonly-used L2, L3, and L4 fields listed below: (Please refer to the User Manual for detailed information.)

- ◆ Ingress Port
- ◆ Physical Port
- ◆ MAC SA/DA
- ◆ Ether type
- ◆ VLAN ID/PCP
- ◆ IPv4 SA/DA
- ◆ IPv4 DSCP
- ◆ IPv4 ECN
- ◆ IPv4 Protocol
- ◆ TCP Source Port
- ◆ TCP Destination Port
- ◆ UDP Source Port
- ◆ UDP Destination Port
- ◆ ICMP type
- ◆ ICMP code
- ◆ ARP op code

OVSDB Monitoring

- ◆ OpenFlow Controller Link Status
- ◆ Link Up/Down Event of Each Link

Product Specifications

Physical Information

- ◆ 24*10/100/1000 Mbps RJ-45; 4*1000 Mbps SFP
- ◆ RS-232

Performance

- ◆ MAC Address Table: 8K
- ◆ Jumbo Frame: 10K Bytes
- ◆ Switching Capability: 56 Gbps

Layer 2

- ◆ Flow Control
 - 802.3x for full-duplex mode
 - Back-Pressure for half-duplex mode
- ◆ Spanning Tree Protocol
 - 802.1D Spanning Tree Protocol (STP)
 - 802.1w Rapid Spanning Tree Protocol (RSTP)
 - 802.1s Multiple Spanning Tree Protocol (MSTP)
 - BPDU Guard
 - Loopback Detection
- ◆ VLAN
 - Port-based
 - MAC-based
 - Protocol-based
 - IP Subnet-based
 - Management VLAN
 - VLAN Trunking
 - GVRP
- ◆ MVR (Multicast VLAN Registration)
- ◆ QinQ
- ◆ Link Aggregation
 - Static Trunk
 - 802.3ad Link Aggregation Control Protocol (LACP)
 - Trunk Groups: 8
 - Maximum number of members per group: 8
- ◆ Storm Control
 - Broadcast
 - Unknown Multicast
 - Unknown Unicast

- ◆ Multicast
 - IGMP v1/v2/v3 Snooping
 - LD v1/v2 Snooping
 - IGMP/MLD Snooping Filtering
 - IGMP/MLD Snooping Throttling
 - IGMP/MLD Snooping Immediate Leave
 - IGMP/MLD Snooping Querier

QoS

- ◆ Class of Service
 - 802.1p-based COS
 - IP DSCP-based COS
 - TCP/UDP Port-based COS
 - IPV4/IPV6-based COS
 - HW Queues: 8 queues/per port
 - DiffServ
- ◆ Priority Queue Scheduling
 - WRR priority scheduling
 - Strict priority scheduling
 - Hybrid (WRR + Strict)
- ◆ Rate Limiting
 - Port-based
 - Flow-based
 - VLAN-based

IPv6

- ◆ IPv4/IPv6 Dual Protocol Stack
- ◆ Auto Configuration
- ◆ IPv6 Neighbor Discovery
- ◆ ICMPv6
- ◆ SNMP over IPv6
- ◆ HTTP/HTTPS over IPv6
- ◆ TFTP over IPv6
- ◆ Ping over IPv6
- ◆ DHCPv6

Network Discovery

- ◆ LLDP (802.1ab)
 - LLDP
 - LLDP-MED

Power Saving

- ◆ 802.3az
- ◆ Cable Length Detection
- ◆ No Link Power Saving

Product Specifications

Security

- ◆ Access Control List
 - MAC-based
 - IPv4-based
 - IPv6-based
 - Management ACL
- ◆ Port Security
 - Static Configuration
 - Dynamic Learn
- ◆ IEEE 802.1X
 - Port-based
 - Guest VLAN
- ◆ Local Account Management
- ◆ Web-based Authentication
- ◆ MAC-based Authentication
- ◆ RADIUS/TACACS+
- ◆ SSL v2/v3, TLSv1
- ◆ SSH v1/v2
- ◆ HTTPS
- ◆ BDPU Guard
- ◆ Black Hole MAC
- ◆ CPU Defense Engine
- ◆ Denial of Service (DoS) Prevention
- ◆ DHCP Snooping with Option 82
- ◆ Dynamic ARP Inspection (DAI)
- ◆ IP Source Guard
- ◆ IP/MAC/Port Binding
- ◆ Protected Port

Management

- ◆ Web-based GUI
- ◆ Firmware Download/Upgrade
 - TFTP
 - HTTP
- ◆ Configuration Upload/Download
 - TFTP
 - HTTP
- ◆ DHCP
 - Client
 - Snooping
- ◆ RMON groups 1, 2, 3 and 9
- ◆ SNMP
 - v1/v2/v3
 - Traps
- ◆ Multiple Configurations
- ◆ Management Access Filtering
 - SNMP
 - Web
- ◆ Timing Protocol
 - SNTP
- ◆ Account Manager
 - Local Authentication
 - Multiple User Account
 - Password Recovery
- ◆ Login Banner
- ◆ UDLD
- ◆ Port Mirroring
- ◆ Cable Test



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