

# ECS4510-28T

## L2+ Gigabit Ethernet Standalone Switch



### Product Overview

The Edge-Core ECS4510-28T is a compact but high-performance Gigabit Ethernet Layer 2+ switch featuring 28 ports; with 24 10/100/1000Base-T ports, 2 10G SFP+ ports, and one 10G dual port expansion slot. The switch is ideal for high-performance server aggregations, such as enterprise data center, where it can connect high-end or network-attached files servers over fiber ports. It can also be deployed as a backbone upgrade, or to provide Gigabit –to-the-desktop for power users. This switch is packed with features and is a cost-effective solution that brings continuous availability, enhanced security and advanced QoS to the network edge, while maintaining simplicity of management.

### Key Features and Benefits

#### Performance and Scalability

ECS4510-28T is a high performance Gigabit Ethernet Layer 2+ managed switch, with 128Gbps switching capacity, it delivers wire-speed switching performance on all Gigabit ports, taking full advantage of existing high-performance on PCs, laptops, significantly improving the responsiveness of applications and file transfer times.

The ECS4510-28T provides two fixed 10G SFP+ ports and one expansion slot for dual-port 10G SFP+ module.

#### Continuous Availability

IEEE 802.1w Rapid Spanning Tree Protocol provides a loop-free network and redundant links to the core network with rapid convergence, to ensure faster recovery from failed links, enhancing overall network stability and reliability.

IEEE 802.1s Multiple Spanning Tree Protocol runs STP per VLAN base, providing Layer 2 load sharing on redundant links up to 32 instances.

The ECS4510-28T supports IEEE 802.3ad Link Aggregation Control Protocol (LACP). It increases bandwidth by automatically aggregating several physical links together as a logical trunk and offers load balancing and fault tolerance for uplink connections.

The ECS4510-28T supports G.8032 Ethernet Ring Protection Switching, with the ability for the network to detect and recover from incidents without impacting users, meeting the most demanding quality and availability requirements. Rapid recovery time when problems do occur is as low as 50 msec.

#### Comprehensive QoS

The ECS4510-28T offers advanced QoS for marking, classification, and scheduling to deliver best-in-class performance for data, voice, and video traffic at wire speed. Eight egress queues per port enable differentiated management of up to eight traffic types through the switch.

Traffic is prioritized according to 802.1p and DSCP to provide optimal performance for real-time applications. Weighted Round Robin (WRR) and strict priority ensure differential prioritization of packet flows and avoid congestion of ingress and egress queues.

Asymmetric bidirectional rate-limiting, per port or per traffic class, preserves network bandwidth and allows maximum control of network resources.

The ECS4510-28T supports Three Color Marker and Policing Single rate: Committed Information Rate (CIR) Two rate: CIR + Peak Information Rate (PIR) Traffic Policing: Which drop or remark the priority tags of packets when they exceed burst size.

#### Enhanced Security

Port Security limits the total number of devices from using a switch port and protects against MAC flooding attacks.

IEEE 802.1x port-based or MAC-based access control ensures all users are authorized before being granted access to the network. When a user is authenticated, the VLAN, QoS and security policy will be automatically applied the port where the user connected, otherwise it will be grouped to guest VLAN with limited access.

DHCP snooping allows a switch to protect a network from rogue DHCP servers to offer invalid IP address.

IP Source Guard stop malicious people from using IP addresses that weren't assigned to them

Access Control Lists (ACLs) can be used to restrict access to sensitive network resources by denying packets based on source and destination MAC addresses, IP addresses, TCP/UDP ports. This is done by hardware, so switching performance is not compromised.

Security Shell and Secure Sockets Layer (SSL/HTTPS) encrypt Telnet and web access to the switch, providing secure network management.

Private VLANs (Traffic segmentation per port) isolates edge ports to ensure user privacy.

DAI (Dynamic ARP Inspection) is a security feature that validates Address Resolution Protocol (ARP) packets in a network. DAI allows a network administrator to intercept, log, and discard ARP packets with invalid MAC address to IP address bindings.

#### Simple Management

Industry standard Command Line Interface (CLI) via console port or Telnet provides a common user interface and command set for users to manipulate the switch.

#### Layer 3 Features IPv4 Static Route\*

The Edge-Core ECS4510-28T Series supports hardware-based IPv4 routing for maximum performance.

Routing protocols such as Static Routes and RIP v1/v2 are supported.

The switches provide a seamless migration path from IPv4 to IPv6 for future network upgrades and investment protection.

## Features

### Physical Ports

- 24 RJ-45 10/100/1000BASE-T ports
- 2 10G SFP+ ports
- 1 expansion slot
- 1 RJ-45 console port
- 1 USB port

### Performance

- Switching Capability: 128Gbps
- Forwarding Rate: 95.23Mpps
- MAC Address Table: 16K
- SDRAM: 256MB
- Flash Memory: 128MB

### L2 Features

- Auto-negotiation for port speed and duplex mode
- Flow Control:
  - IEEE 802.3x for full duplex mode
  - Back-Pressure for half duplex mode
- Spanning Tree Protocol:
  - IEEE 802.1D Spanning Tree Protocol (STP)
  - IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
  - IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
  - BPDU Guard
  - BPDU filtering
  - Root Guard
  - Loopback detection
- VLANs:
  - Supports 4K IEEE 802.1Q VLANs
  - Port-based
  - GVRP
  - IEEE 802.1v Protocol-based VLANs
  - Mac-based VLANs
  - IP subnet based VLAN
  - Private VLAN (Traffic Segmentation per port/ VLAN)
  - Guest VLAN
  - Voice VLAN
  - VLAN Trunking
- Link Aggregation:
  - Static Trunk
  - IEEE 802.3ad Link Aggregation Control Protocol
  - Trunk groups: 16
  - Trunk links: 2~8 ports for Gigabit Ethernet ports  
2~4 ports for 10 Gigabit Ethernet ports
  - Load Balance: SA+DA, SA,DA,SIP+DIP, SIP, DIP
- IGMP Snooping:
  - IGMP v1/v2/v3 snooping
  - IGMP Proxy reporting
  - IGMP Filtering
  - IGMP Throttling
  - IGMP Immediate Leave
  - IGMP Querier
- MVR (Multicast VLAN Registration)
- Supports QinQ
- Supports select QinQ
- UDLD
- G.8032 (ERPS)
- Supports jumbo frames up to 10KB
- Supports Digital Diagnostic Monitoring (DDM)
- Cable Diagnostic

### Security Features

- Port security
- IEEE 802.1X port based and MAC based authentication
- Dynamic VLAN Assignment, Auto QoS, Auto ACL
- MAC authentication, Web authentication
- Voice VLAN, Guest VLAN
- Access Control List
  - MAC Access control list ( Source/Destination MAC, Ether type, Priority ID/ VLAN ID )
  - IP Standard access control list (Source IP)
  - IP extended access control list (Source/Destination IP, Protocol, TCP/UDP port number)
- DHCP Snooping
- DHCP Snooping Option 82
- IP Source Guard
- Dynamic ARP Inspection
- Instruction lock (link detection)
- PPPoE Intermediate Agent
- RADIUS authentication
- TACACS + authorization and accounting
- Management Security
- HTTPS and SSL (Secured Web)
- Denial of Service Protection (DoS)
- SSH 1.5/V2.0 (Secured Telnet Session)
- Management Interface Access Filtering (SNMP, Web, Telnet)

### Management

- Switch Management:
  - CLI via console port or Telnet
  - WEB management
  - SNMP v1, v2, v3
- Firmware & Configuration:
  - Firmware upgrade via TFTP server
  - Supports dual image
  - Supports auto configuration provision
  - Supports auto firmware upgrade
  - Multiple configuration files
  - Configuration file upload/download via TFTP server
- RMON (groups 1, 2, 3 and 9)
- BOOTP, DHCP client for IP address assignment
- SNTP, NTP
- IP clustering
- Port mirroring
- VLAN mirror
- sFlow
- Event/Error Log/Syslog, Remote log(RFC3164), SMTP
- MIB I/II
- LLDP (802.1ab)
- Auto traffic control

### OAM Features

- IEEE 802.3ah Link
- IEEE 802.1ag Connectivity Fault Management
  - Connectivity check
  - Loopback
  - Linktrace
- ITU-T Y.1731 Performance and Throughput Management
  - Frame Delay (two way only)
  - Frame Delay variation (two way only)

## Features

### QoS Features

- Priority Queues: 8 hardware queues per port
- Traffic classification
  - IEEE 802.1p CoS
  - DSCP
- Traffic Scheduling
  - Strict Priority
  - Weighted Round Robin
  - Strict + WRR traffic scheduling
- Two rate Three color marker
  - Ingress traffic policing
  - Egress traffic shaping
  - Marking/remarking
- Rate Limiting (Ingress and Egress, per port base)
  - GE: Resolution 64Kbps ~ 1000Mbps

### IPv6 Features

- IPv4/IPv6 Dual Protocol Stack
- IPv6 Address Types (Unicast/Multicast(only used by internally))
- ICMPv6 & ICMPv6 Redirect
- IPv6 Path MTU Discovery
- IPv6 Neighbor Discovery
- Manual Configuration
- SNMP over IPv6
- HTTP over IPv6
- SSH over IPv6
- IPv6 Telnet Support
- IPv6 DNS Resolver
- IPv6 Syslog
- IPv6 SNMP
- IPv6 sFlow
- IPv6 TFTP(CLI not support)
- Remote IPv6 Ping
- DHCPv6 Snooping
- MVRv6
- IPv6 DiffServ
- IPv6 ACL support

### Mechanical

- Dimensions (W x D x H): 440 x 315 x 44mm
- Weight : 3.7kg (8.1lbs)
- LED Indicators: Port, Uplink, System, Diagnostic

### Safety

- CSA (CSA 22.2. NO 60950-1 & UL60950-1)
- CB (IEC60950-1)

### Electromagnetic Compatibility

- CE Mark
- FCC Class A
- VCCI Class A
- EN55022 (CISPR22) Class A

### Environmental Specifications

- Temperature:
  - 0°C to 45°C (Standard Operating)
  - -40°C to 70°C (Non-Operating)
- Humidity: 10% to 90% (Non-condensing)
- Vibration: IEC 68-2-36, IEC 68-2-6
- Shock: IEC 68-2-29
- Drop: IEC 68-2-32

### Power Supply

- AC Power code
  - 100 to 240 V, 50-60 Hz, 1.5A
- Power Supply
  - Internal, auto-ranging transformer: 100 to 240 VAC, 50 to 60 Hz
- Power Consumption
  - 35W (without expansion module)
  - 40W (with one expansion module)
- Maximum Current
  - 0.65A@110VAC (without expansion module)
  - 1.1A@110VAC (with one expansion module)

### Warranty

Please check [www.edge-core.com](http://www.edge-core.com) for the warranty terms in your country

\* Future Release

## Ordering Information

### Optional Accessories

- ET4201-SX
- ET4201-LX
- ET4201-LHX
- ET4201-ZX
- ET4202-SX
- ET4202-LX
- ET5402-SR
- ET5402-LR
- ET5402-ER
- EM4510-10GSFP+
- ECView Pro

### Product Description

- Small Form Factor Pluggable (1000BASE-SX; Distance: 500m; Wavelength: 850nm)
- Small Form Factor Pluggable (1000BASE-LX; Distance: 10km; Wavelength: 1310nm)
- Small Form Factor Pluggable (1000BASE-LHX; Distance: 40km; Wavelength: 1310nm)
- Small Form Factor Pluggable (1000BASE-ZX; Distance: 80km; Wavelength: 1550nm)
- Small Form Factor Pluggable (1000BASE-SX; Distance: 500m; Wavelength: 850nm,DDM)
- Small Form Factor Pluggable (1000BASE-LX; Distance: 10km; Wavelength: 1310nm,DDM)
- Small Form-factor Pluggable Plus(10GBASE-SR; Distance: 300m; Wavelength: 850nm)
- Small Form-factor Pluggable Plus(10GBASE-LR; Distance: 10km; Wavelength: 1310nm)
- Small Form-factor Pluggable Plus(10GBASE-ER; Distance: 40km; Wavelength: 1550nm)
- 10G SFP+ Dual port module
- Network Management Software