

# ECS4510 Series

## L2+ Gigabit Ethernet Stackable Switch



### Product Overview

The Edgecore ECS4510 series includes high-performance Gigabit Ethernet Layer 2+ switches featuring 28 or 52 ports; 24 /48 10/100/1000BASE-T ports, two 10G SFP+ ports, and one 10G expansion slot for a dual-port module. The switch is ideal for high-performance server aggregations, such as enterprise data centers, where it can connect high-end or network-attached file servers through 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

The ECS4510 series includes high-performance Gigabit Ethernet Layer 2+ managed switches with 128/176 Gbps switching capacity. The switches deliver wire-speed switching performance on all Gigabit ports, taking full advantage of existing high-performance PCs, significantly improving the responsiveness of applications and file transfer times.

#### Continuous Availability

The 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.

The IEEE 802.1s Multiple Spanning Tree Protocol runs STP per VLAN base, providing Layer 2 load sharing on redundant links up to 65 instances.

The ECS4510 series 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 series 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 series 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 series 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 are automatically applied the port where the user is connected, otherwise the port is grouped in a guest VLAN with limited access.

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

IP Source Guard prevents people from using IP addresses that were not 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, or TCP/UDP ports. ACLs are hardware supported, so switching performance is not compromised.

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

Private VLANs (traffic segmentation per port) isolate 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-to-IP address bindings.

#### Hardware Stacking

ECS4510 series switch is able to stack up to 4 units and extend its port count.

Stack acting as a single device and a single IP address for remote management/administration of the whole units.

#### Simple Management




An industry-standard command-line interface (CLI), accessed through the console port or Telnet, provides a familiar user interface and command set for users to manage the switch.

#### Layer 3 Features IPv4 Static Route




The ECS4510 series supports hardware-based IPv4 routing for maximum performance.

Routing protocols, such as RIP v1/v2, and static routes are supported.

## Key Features and Benefits

Product Model		ECS4510-28T	ECS4510-28P	ECS4510-28F
Product Image				
Port	RJ-45 10/100/1000BASE-T Ports	24	24	0
	100/1000 SFP Ports	0	0	22
	10/100/1000 Combo Ports	0	0	2
	SFP+ 10 Gigabit Uplink Ports	2	2	2
	10G SFP+ Expansion Module Slots	1	1	1
	PoE Port	0	24	0
	RJ-45 Console Port	1	1	1
Performance	Switching Capacity	128 Gbps	128 Gbps	128 Gbps
	Forwarding Rate	95.23 Mpps	95.23 Mpps	95.23 Mpps
	Flash Memory	128 MB	128 MB	128 MB
	DRAM	256 MB	256 MB	256 MB
	MAC Address Table Size	16K	16K	16K
	Jumbo Frames	10K	10K	10K
	Auto-negotiation, Auto-MDI/MDIX	Yes	Yes	Yes
PoE	Support on all Gigabit ports based on IEEE 802.3af	No	Yes	No
	PoE+ based on IEEE 802.3at	No	Yes	No
	Auto disable after exceeding power budget	No	Yes	No
	Dynamic Power Allocation	No	Yes	No
	PoE Power Budget	No	410 W	No
Mechanical	Rack Space	19"	19"	19"
	Dimension (W x D x H) cm	44 x 31.5 x 4.4	44 x 31.5 x 4.4	44 x 31.5 x 4.4
	Weight	3.7 kg	4.5 kg	3.8 kg
Power Supply	100-240 VAC, 50/60 Hz	Yes	Yes	Yes
	Max System Power Consumption (Watts)	35 W	49 W	42 W
Environmental	Operating Temperature	0°C to 45°C	0°C to 45°C	0°C to 45°C
	Storage Temperature	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C
	Operating Humidity (non-condensing)	10% to 90%	10% to 90%	10% to 90%
	Storage Humidity (non-condensing)	10% to 90%	10% to 90%	10% to 90%
	Environmental Regulation Compliance: WEEE	Yes	Yes	Yes
	Environmental Regulation Compliance: RoHS	Yes	Yes	Yes
Certification	FCC Class A	Yes	Yes	Yes
	CE	Yes	Yes	Yes
	Safety Compliance: CB	Yes	Yes	Yes
	Safety Compliance: UL	Yes	Yes	Yes

## Features

Product Model		ECS4510-28F-DC	ECS4510-52T	ECS4510-52P
Product Image				
Port	RJ-45 10/100/1000BASE-T Ports	0	48	48
	100/1000 SFP Ports	22	0	0
	10/100/1000 Combo Ports	2	0	0
	SFP+ 10 Gigabit Uplink Ports	2	2	2
	10G SFP+ Expansion Module Slots	1	1	1
	PoE Port	0	0	48
	RJ-45 Console Port	1	1	1
Performance	Switching Capacity	128 Gbps	176 Gbps	176 Gbps
	Forwarding Rate	95.23 Mpps	130.94 Mpps	130.94 Mpps
	Flash Memory	128 MB	128 MB	128 MB
	DRAM	256 MB	256 MB	256 MB
	MAC Address Table Size	16K	16K	16K
	Jumbo Frames	10K	10K	10K
	Auto-negotiation, Auto-MDI/MDIX	Yes	Yes	Yes
PoE	Support on all Gigabit ports based on IEEE 802.3af	No	No	Yes
	PoE+ based on IEEE 802.3at	No	No	Yes
	Auto disable after exceeding power budget	No	No	Yes
	Dynamic Power Allocation	No	No	Yes
	PoE Power Budget	No	No	780 W
Mechanical	Rack Space	19"	19"	19"
	Dimension (W x D x H) cm	44 x 31.5 x 4.4	44 x 39.1 x 4.4	44 x 39.1 x 4.4
	Weight	3.8 kg	5.4 kg	6.5 kg
Power Supply	100-240 VAC, 50/60 Hz	DC 36V~75V	Yes	Yes
	Max System Power Consumption (Watts)	42 W	55 W	65 W
Environmental	Operating Temperature	0°C to 45°C	0°C to 45°C	0°C to 45°C
	Storage Temperature	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C
	Operating Humidity (non-condensing)	10% to 90%	10% to 90%	10% to 90%
	Storage Humidity (non-condensing)	10% to 90%	10% to 90%	10% to 90%
	Environmental Regulation Compliance: WEEE	Yes	Yes	Yes
	Environmental Regulation Compliance: RoHS	Yes	Yes	Yes
Certification	FCC Class A	Yes	Yes	Yes
	CE	Yes	Yes	Yes
	Safety Compliance: CB	Yes	Yes	Yes
	Safety Compliance: UL	Yes	Yes	Yes

## Features

### 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

Broadcast/Multicast/Unknown Unicast Storm Control

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
- Spanning Tree Fast Forwarding
- Auto Edge-Port
- BPDU forward

VLANs:

- Supports 4K IEEE 802.1Q VLANs
- Port-based VLANs
- GVRP/GARP
- IEEE 802.1v Protocol-based VLANs
- MAC-based VLANs
- IP subnet-based VLANs
- Private VLANs (Community)
- Traffic Segmentation (port isolated)
- Voice VLANs
- VLAN trunking
- VLAN translation

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

IGMP Snooping:

- IGMP v1/v2/v3 snooping
- IGMP SNP Proxy (V1/V2/V3)
- IGMP Filtering
- IGMP Throttling
- IGMP Immediate Leave
- IGMP v1/v2 Querier
- IGMP Authentication

MVR (Multicast VLAN Registration)

Supports Q-in-Q

Supports select Q-in-Q

UDLD

G.8032 v2 (ERPS)

Supports jumbo frames up to 10KB

Supports Digital Diagnostic Monitoring (DDM)

Cable diagnostics

Support MSTP instances to 65 (64 MSTI + 1 CIST)

CPU protection

HW Stacking

Non-STP loopback detection

L2 Protocol Tunneling(CDP,PVST,STP,LLDP)

Packet filtering of L2 control CDP/PVST

### QoS Features

Priority Queues: 8 hardware queues per port

Traffic classification

- IEEE 802.1p CoS
- DSCP
- PHB (Per Hop Behavior – internal priority)
- Port-based default priority

Traffic Scheduling

- Strict Priority
- Weighted Round Robin
- Strict + WRR traffic scheduling

Diffserv

Rate Limiting (ingress and egress, per port base)

- GE: Resolution 64 Kbps ~ 1000 Mbps

### Security Features

Port security

802.1x (authentication)

- Port-based Authentication
- MAC-based Authentication
- Guest VLANs
- EAPOL frames pass-through

802.1x Supplicant support

Dynamic VLAN assignment

Dynamic QoS assignment

MAC Authentication

Web Authentication (per port)

Intrusion Lock (Link Detection)

MAC Filter

Access Control List

- L2/L3/L4
- Ingress
- Egress
- Statistics
- Time-based (time range)

AAA

- RADIUS authentication
- RADIUS accounting
- TACACS+ authentication
- TACACS+ authorization
- TACACS+ accounting

Local Authentication

Remote Authentication via RADIUS

Remote Authentication via TACACS+

HTTPS and SSL (secured web)

Denial of Service (DoS) protection

SSH 1.5/V2.0 (secured telnet session)

Management Interface Access Filtering (SNMP, Web, Telnet)

## Features

### Management

Switch Management:  
Web Based Management  
CLI Based Management  
Telnet

- Client
- Server

Software/configuration download/upgrade

- TFTP
- HTTP
- FTP

Dual Images  
Auto Upgrade

- TFTP
- FTP

SNMP

- v1
- v2c
- v3

RMON

- RMON1 (groups 1, 2, 3, and 9)

BOOTP

- Client

DHCP

- Client
- Relay
- Snooping
- Snooping Option82
- Dynamic Provision (via Option 66, 67)

IP Source Guard  
Port Mirroring  
VLAN Mirror  
MAC Based Mirror  
ACL Mirror  
Remote Port Mirror (RSPAN)  
Event/Error Logging

- Syslog (local flash)
- Remotelog
- SMTP (e-mail notification)

DNS

- Client
- Proxy

Remote Ping  
SNTPv4  
NTP  
IP Clustering  
LLDP (802.1ab)

- Link Layer Discovery Protocol (LLDP)
- LLDP-MED (VoIP related)

Mac flush  
sFlow (V4/V5)  
Dynamic ARP Inspection (DAI)  
Auto Traffic Control (ATC) (SW rate limit)  
PPPoE Intermediate Agent  
Delay reload

### IEEE Standard

IEEE 802.1p priority tags  
IEEE 802.1X port authentication  
IEEE 802.3x Ethernet frame start and stop requests and timers used for flow control on full-duplex links  
IEEE 802.3u CSMA/CD access method and physical layer specifications for 100BASE-TX Fast Ethernet  
IEEE 802.3z CSMA/CD access method and physical layer specifications for 1000BASE Gigabit Ethernet  
IEEE 802.1q Virtual LAN  
IEEE 802.1d Spanning Tree Protocol  
IEEE 802.3ad Link Aggregation Control Protocol  
IEEE 802.1s Rapid Spanning Tree Protocol  
IEEE 802.1w Multiple Spanning Tree Protocol

### IPv6 Features

IPv4/IPv6 dual protocol stack  
IPv6 address type

- Unicast
- Multicast (internal used)

ICMPv6  
ICMPv6 Redirect (Host)  
IPv6 Path MTU Discovery  
IPv6 Neighbor Discovery

- Router discovery
- Duplicate address
- Parameter discovery
- Prefix discovery
- Address resolution
- Unreachable neighbor detection

Stateless autoconfiguration  
Manual configuration  
SNMP over IPv6  
HTTP over IPv6  
SSH over IPv6  
IPv6 telnet support  
IPv6 DNS resolver  
IPv6 Syslog support  
IPv6 SNTP support  
IPv6 TFTP support  
Remote IPv6 Ping  
Ping over IPv6  
Trace route over IPv6  
IPv6 sFlow  
DHCPv6

- Client
- Snooping

MVR6  
IPv6 Source Guard  
RA Guard  
MLD Snooping v1/v2  
IPv6 ND Snooping  
IPv6 ACL

### OAM Features

IEEE 802.3ah Link  
IEEE 802.1ag Connectivity Fault Management (CFM)  
ITU-T Y.1731 performance and throughput management

## Features

### Warranty

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

Country of Origin: Taiwan (TAA Compliant)

### For More Information

To find out more about Edgecore Networks Corporation products and solutions, visit [www.edge-core.com](http://www.edge-core.com).

### About Edgecore Networks Corporation

Edgecore Networks Corporation is in the business of providing innovative network solutions. In the service provider network, in the data center or in the cloud, Edgecore Networks Corporation delivers the software and systems that transform the way the world connects. Edgecore Networks Corporation serves customers and partners worldwide. Additional information can be found at [www.edge-core.com](http://www.edge-core.com).

To purchase Edgecore Networks solutions, please contact your Edgecore Networks Corporation representatives at +886 3 563 8888 (HQ) or +1 (949)-336-6801 or authorized resellers.

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## Ordering Information

Optional Accessories	Product Description
ET4201-SX	1Gbps, Small Form Factor Pluggable (Distance: 500 m; Wavelength: 850 nm)
ET4201-LX	1Gbps, Small Form Factor Pluggable (Distance: 10 km; Wavelength: 1310 nm)
ET4201-LHX	1Gbps, Small Form Factor Pluggable (Distance: 40 km; Wavelength: 1310 nm)
ET4201-ZX	1Gbps, Small Form Factor Pluggable (Distance: 80 km; Wavelength: 1550 nm)
ET4202-SX	1Gbps, Small Form Factor Pluggable (Distance: 550 m; Wavelength: 850 nm, DDM)
ET4202-LX	1Gbps, Small Form Factor Pluggable (Distance: 10 km; Wavelength: 1310 nm, DDM)
ET5402-SR	10Gbps, Small Form Factor Pluggable (Distance: 300 m; Wavelength: 850 nm)
ET5402-LR	10Gbps, Small Form Factor Pluggable (Distance: 10 km; Wavelength: 1310 nm)
ET5402-ER	10Gbps, Small Form Factor Pluggable (Distance: 40 km; Wavelength: 1550 nm)
EM4510-10G SFP+	10G SFP+ Dual port module
ECView Pro	Network Management Software