ECS4510 Series
L2+ Gigabit Ethernet Standalone Switch

Product Overview

The Edge-Core ECS4510 series is a compact but high-performance Gigabit Ethernet Layer 2+ switch featuring 28 /52 ports; with 24 /48 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 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 series is a high performance Gigabit Ethernet Layer 2+ managed switch, with 128/176Gbps 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 series 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 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 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 series supports hardware-based IPv4 routing for maximum performance.

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

ECS4510 Series Product Specifications

Technical Specifications

Product Model	ECS4510-28T	ECS4510-28P	ECS4510-28F
Product Image			
Port			
RJ-45 10/100/1000 Ports	24	24	0
10/100/1000 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	2	2	2
PoE Port	X	24	X
RJ-45 Console Port	O	O	O
Performance			
Switching Capacity	128Gbps	128Gbps	128Gbps
Forwarding Rate	95.23Mpps	95.23Mpps	95.23Mpps
Flash Memory	128MB	128MB	128MB
DRAM	256MB	256MB	256MB
MAC Address Table Size	16K	16K	16K
Jumbo Frames	10K	10K	10K
Auto-negotiation, Auto-MDI/MDIX	O	O	O
PoE			
Support on all Gigabit ports based on IEEE 802.3af	X	O	X
PoE+ based on IEEE 802.3at	X	O	X
Auto disable after exceeding power budget	X	O	X
Dynamic Power Allocation	X	O	X
PoE Power Budget	X	410W	X
Mechanical			
Rack Space	19"	19"	19"
Dimension (W x D x H)	44 x 31.5 x 4.4 cm	44 x 31.5 x 4.4 cm	44 x 31.5 x 4.4 cm
Weight	3.7kg	4.5kg	3.8kg
Power Supply			
100-240 VAC, 50/60Hz	O	O	O
Max System Power Consumption (Watts)	35W	49W	42W
Environmental			
Operating Temperature	0℃ to 45℃	0℃ to 45℃	0℃ to 45℃
Storage Temperature	-40℃ to 70℃	-40℃ to 70℃	-40℃ to 70℃
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	O	O	O
Environmental Regulation Compliance: RoHS	O	O	O
Certification			
FCC Class A	O	O	O
CE	O	O	O
Safety Compliance: CB	O	O	O
Safety Compliance: UL	O	O	O

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ECS4510 Series Product Specifications

Technical Specifications

Product Model		ECS4510-52T	ECS4510-52P
Product Image			
Port	RJ-45 10/100/1000 Ports	48	48
	10/100/1000 SFP Ports	0	0
	10/100/1000 Combo Ports	0	0
	SFP+ 10 Gigabit Uplink Ports	2	2
	10G SFP+ Expansion Module Slots	2	2
	PoE Port	X	48
	RJ-45 Console Port	O	O
Performance	Switching Capacity	176Gbps	176Gbps
	Forwarding Rate	130.94Mpps	130.94Mpps
	Flash Memory	128MB	128MBM
	DRAM	256MB	256MB
	MAC Address Table Size	16K	16K
	Jumbo Frames	10K	10K
	Auto-negotiation, Auto-MDI/MDIX	O	O
PoE	Support on all Gigabit ports based on IEEE 802.3af	X	O
	PoE+ based on IEEE 802.3at	X	O
	Auto disable after exceeding power budget	X	O
	Dynamic Power Allocation	X	O
	PoE Power Budget	X	780W
Mechanical	Rack Space	19"	19"
	Dimension (W x D x H)	44 x 39.1 x 4.4 cm	44 x 39.1 x 4.4 cm
	Weight	5.4kg	6.5kg
Power Supply	100-240 VAC, 50/60Hz	O	O
	Max System Power Consumption (Watts)	55W	65W
Environmental	Operating Temperature	0℃ to 45℃	0℃ to 45℃
	Storage Temperature	-40℃ to 70℃	-40℃ to 70℃
	Operating Humidity (non-condensing)	10% to 90%	10% to 90%
	Storage Humidity (non-condensing)	10% to 90%	10% to 90%
	Environmental Regulation Compliance: WEEE	O	O
	Environmental Regulation Compliance: RoHS	O	O
Certification	FCC Class A	O	O
	CE	O	O
	Safety Compliance: CB	O	O
	Safety Compliance: UL	O	O

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

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)
- 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
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)

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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

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 100BASETX 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 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 SNTP
IPv6 sFlow
IPv6 TFTP(CLI not support)
Remote IPv6 Ping
DHCPv6 Snooping
MVRv6
IPv6 DiffServ
IPv6 ACL support

Warranty

Please check www.edge-core.com for the warranty terms in your country

For More Information
To find out more about Edge-Core Networks products and solutions, visit www.edge-core.com

About Edge-Core Networks
Edge-Core Networks is in the business of providing innovative network solutions. In the service provider network, in the data center or in the cloud, Edge-Core Networks delivers the software and systems that transform the way the world connects. Edge-Core Networks serves customers and partners worldwide. Additional information can be found at www.edge-core.com.

To purchase Edge-Core Networks solutions, please contact your Edge-Core Networks representative at 886 3 563 8888 or authorized reseller.

* Future Release

Ordering Information

Optional Accessories

Product	Product Description
ET4201-SX	Small Form Factor Pluggable (1000BASE-SX; Distance: 500m; Wavelength: 850nm)
ET4201-LX	Small Form Factor Pluggable (1000BASE-LX; Distance: 10km; Wavelength: 1310nm)
ET4201-LHX	Small Form Factor Pluggable (1000BASE-LHX; Distance: 40km; Wavelength: 1310nm)
ET4201-ZX	Small Form Factor Pluggable (1000BASE-ZX; Distance: 80km; Wavelength: 1550nm)
ET4202-SX	Small Form Factor Pluggable (1000BASE-SX; Distance: 500m; Wavelength: 850nm,DDM)
ET4202-LX	Small Form Factor Pluggable (1000BASE-LX; Distance: 10km; Wavelength: 1310nm.DDM)
ET5402-SR	Small Form-factor Pluggable Plus(10GBASE-SR: Distance: 300m; Wavelength: 850nm)
ET5402-LR	Small Form-factor Pluggable Plus(10GBASE-LR: Distance: 10km; Wavelength: 1310nm)
ET5402-ER	Small Form-factor Pluggable Plus(10GBASE-ER: Distance: 40km; Wavelength: 1550nm)
EM4510-10GSFP+	10G SFP+ Dual port module
ECView Pro	Network Management Software
RPS 900W	Redundant Power Supply,1 connected switch with Output: -53.5V/14.3A,+11.3V/10A

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