

ECS4100-28P

L2+/L3 Lite Gigabit Ethernet Access Switch



Product Overview

The Edgecore ECS4100-28P switch is a 24-port PoE Gigabit Ethernet access switch with 4 100M/1G uplink SFP ports. The switch is ideal for Internet Service Providers (ISPs) and Multiple System Operators (MSOs) to provide home users with triple-play services and up to a Gigabit of bandwidth. The PoE function can be used to connect to WiFi APs for a hotspot service, or to connect to IP surveillance devices. It is also an ideal Gigabit access switch for SMB, enterprise, and campus networks connect to IP phones, WiFi APs, and IP surveillance cameras. The ECS4100-28P switch is packed with features that bring high availability, comprehensive security, robust multicast control, and advanced QoS to the network edge, while maintaining simple management. The switch also supports the most advanced IPv6 management, IPv6 security, and IPv6 multicast control in accordance with the growth of IPv6 deployment. ISPs can expand their services for home to business users by providing a more reliable and resilient network (ITU-T G.8032 ERPS), L2 VPNs, and advanced OAM (Operations, Administration, and Maintenance) functions to ensure service-level agreements.

Key Features and Benefits

Performance and Scalability

The Edgecore ECS4100-28P is a high-performance Gigabit Ethernet Layer 2+ managed switch with 56 Gbps switching capacity. The switch delivers wire-speed switching performance on all Gigabit ports, taking full advantage of existing high-performance Gigabit CPEs, PCs, 11n/ac Wi-Fi APs etc, significantly improving the responsiveness of applications and file transfer times.

The four 1G SFP ports provide uplink flexibility, allowing the insertion of fiber or copper Gigabit transceivers, to create up to 4 Gbps high-speed uplinks to service provider, corporate, or campus networks, reducing bottlenecks and increasing the performance of the access network.

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 64 instances.

The ECS4100-28P 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 ECS4100-28P 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 ms.

Reliability and Energy Efficiency

The design of the ECS4100-28P incorporates high energy efficiency in order to reduce the impact on the environment. The Green Ethernet power-saving features and fanless design significantly reduce the power consumption.

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 users 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.

Traffic segmentation (Private VLAN) 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.

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

Key Features and Benefits

Comprehensive QoS

The ECS4100-28P 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.

Robust Multicast Control

IGMP snooping prevents the flooding of multicast traffic by dynamically configuring switch ports so that multicast traffic is forwarded to only those ports associated with an IP multicast receiver. IGMP increases the performance of networks by reducing multicast traffic flooding.

IGMP groups allow you to create customer packages for IP-TV channels, making switch configuration easy. IGMP Filtering prevents subscribers seeing unsubscribed IP-TV channels. And, IGMP Throttling allows you to set how many IP-TV channels a subscriber can receive simultaneously.

Multicast VLAN Registration (MVR) is designed for applications such as Media-on-Demand that send multicast traffic across an Ethernet network. Multicast VLANs are shared in the network, while subscribers remain in separate VLANs. This increases network security and saves bandwidth on core links. Multicast streams do not have to be routed in core L3 switches, which saves CPU power.

IPv6 Support

The switch supports a number of IPv6 features, including IPv6 Management, DHCPv6 Snooping with Option 37, IPv6 Source Guard, and MVR6.

Service Monitoring and Management

The ECS4100-28P supports Layer 2 VPNs by using Q-in-Q functions, where an 802.1Q tag from a customer VLAN (called CE-VLAN ID) is encapsulated in a second 802.1Q tag from a service-provider network (called an SP-VLAN ID). The switch supports rewriting the VLAN tag of egress traffic when the ingress traffic is tagged.

The switch also supports Layer 2 Protocol Tunneling for STP, CDP, VTP, PVST+, with Cisco-proprietary multicast address (01-00-0c-cd-cd-d0) replacement.

Superior 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.

An embedded user-friendly web interface helps users to quickly and simply configure switches.

The ECS4100-28P supports SNMPv1,2c,3 and four-group RMON. The switch provides a complete private MIB for the configuration of most functions via the SNMP protocol.

Administrators can backup and restore firmware and configuration files via TFTP or FTP. The switch also provides the configuration of auto-provision for ease of use in large deployments.

AAA (Authentication, Authorization and Accounting) via RADIUS, TACACS+, enables centralized control of the switches. Access rights can be authorized per user and account for all actions performed by administrators.

Virtual Private Networks

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PoE Features


The ECS4100-28P provide 30 Watts of power to high power devices such as PTZ IP cam with heater or 30 Watts of power to network devices, such as VoIP phones, wireless access points, surveillance cameras, etc, all over existing Cat. 5 cables. The switch can deliver up to 30 Watts on 6 ports, or 15.4 Watts on 12 ports.

PoE eliminates the need for individual power sources for devices in the network, saving on costs for power cables and avoiding power outlet availability issues. If the power demand exceeds the switch's maximum power budget, ports can be prioritized to receive power.

ECS4100-28P Product Specifications

www.edge-core.com

Features

Product Model		ECS4100-28P
Product Image		
Port	RJ-45 10/100/1000BASE-T Ports	24 (PoE)
	100/1000 SFP Ports	4
	10/100/1000 Combo Ports	0
	SFP+ 10 Gigabit Uplink Ports	0
	GE Out-of-Band Management Port	No
	RJ-45 Console Port	1
Performance	Switching Capacity	56 Gbps
	Forwarding Rate	41.7 Mpps
	Flash Memory	32 MB
	DRAM	256 MB
	MAC Address Table Size	16 K
	Jumbo Frames	12 KB
	Auto-negotiation, Auto-MDI/MDIX	Yes
	Acoustics	53 dB (A)
	MTBF	366,322 hrs
PoE	Ultra PoE 60 W	N/A
	PoE+ based on IEEE 802.3bt/802.3af/802.3at	Yes
	Auto disable after exceeding power budget	Yes
	Dynamic Power Allocation	Yes
	PoE Power Budget	190 W
Mechanical	Dimension (W x D x H) cm	44.2 x 33.0 x 4.36
	Weight	3935 g
Power Supply	100-240 VAC, 50-60 Hz	Yes
	Max System Power Consumption (Watts)	260 W
Environmental	Operating Temperature	0°C to 50°C
	Storage Temperature	-40°C to 70°C
	Operating Humidity (non-condensing)	10% to 90%
	Storage Humidity (non-condensing)	10% to 90%
	Environmental Regulation Compliance: WEEE	Yes
	Environmental Regulation Compliance: RoHS	Yes
Certification	FCC Class A	Yes
	CE	Yes
	Safety Compliance: CB	Yes
	Safety Compliance: UL	Yes

Features

L2 Features

- Tri-speed (10/100/1000BASE-T) copper interfaces
- Auto-negotiation for port speed and duplex mode
- Auto MDI/MDI-X
- 100 M/1 G fiber interfaces
- SFP ports support:
 - IEEE 802.3 100BASE-FX
 - IEEE 802.3z (1000BASE-SX/LX/LHX/ZX) transceivers
- Transceiver-threshold current/rx-power/temperature/tx-power/voltage/high-low alarm and warning
- Digital Diagnostic Monitoring (DDM) on SFP port only
- Flow Control:
 - IEEE 802.3x for full-duplex mode
 - Back-pressure for half-duplex mode
- Jumbo frames: 12 KB
- 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), 64 instances
- Spanning-tree restricted-tcn
- Spanning-tree tc-prop-stop Stops propagation of topology change information
- BPDUGuard
- BPDUFILTER
- Root Guard
- Loopback detection
- Non-Spanning Tree Loopback detection
- ITU-T G.8032 Ethernet Ring Protection Switching:
 - Sub 50 msec convergence
 - Non-revertive operation mode
 - Multiple-ring network
- VLANs:
 - Supports 4K VLAN
 - Port-based VLAN
 - IEEE 802.1Q VLAN
 - GVRP (256 VLAN)
 - IEEE 802.1v protocol-based VLAN
 - IP Subnet-based VLAN
 - MAC-based VLAN
 - Traffic Segmentation
- L2 Virtual Private Network (Q-in-Q):
 - Selective Q-in-Q
 - VLAN Translation
 - L2 Protocol tunneling (xSTP, CDP, VTP & PVST+, LLDP)
 - CDP/PVST+ Filtering
- Link Aggregation:
 - Static Trunk
 - IEEE 802.3ad Link Aggregation Control Protocol
 - Trunk groups: 16, up to 8 GE ports per group
 - Load Balancing: 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
 - IGMP mrouter-forward mode
 - IGMP router-alert-option-check
 - IGMP router-port-expire-time
 - IGMP tcn-flood
 - IGMP tcn-query-solicit
 - IGMP unregistered-data-flood
- MVR (Multicast VLAN Registration): Supports 5 multicast VLANs
- Port mirroring (many source ports to one destination port. One source port to one destination port only)
- Remote port mirror (RSPAN)

QoS Features

- Priority Queues: 8 hardware queues per port
- Traffic classification:
 - IEEE 802.1p CoS
 - IP Precedence
 - DSCP
 - 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)
- Traffic Scheduling:
 - Strict Priority
 - Weighted Round Robin
 - Strict + WRR
- Ingress policy map (police rate, remark CoS)
- Egress policy map (police rate, remark CoS/DSCP)
- Rate Limiting (Ingress and Egress, per port base):
 - GE: Resolution 64 Kbps ~ 1,000 Mbps
- Auto Traffic Control

Security

- User Security for Enterprise:
 - IEEE 802.1X port based and MAC based authentication
 - Dynamic VLAN Assignment, Auto QoS
 - MAC authentication
 - Web authentication
 - Voice VLAN
 - Guest VLAN
- User Security for ISP/MSO:
 - L2/L3/L4 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 Option 82
 - DHCP Option 82 Relay
 - IP Source Guard
- Network Security:
 - IPv6 ACL
 - Port security
 - PPPoE IA
 - Dynamic ARP Inspection
 - CPU guard
 - CPU/Memory threshold and alarm
 - Denial of Service Protection:
 - echo-chargen
 - smurf
 - tcp-flooding
 - tcp-null-scan
 - tcp-syn-fin-scan
 - tcp-xmas-scan
 - udp-flooding
 - win-nuke
- Management Security:
 - Login Security
 - RADIUS authentication
 - RADIUS accounting
 - TACACS + authentication
 - TACACS + accounting
 - TACACS + authorization
 - Management Interface Access Filtering (SNMP, Web, Telnet)
 - SSH (v1.5/v2.0) for security Telnet
 - SSL for HTTPS
 - SNMPv3

Features

Green Ethernet

IEEE 802.3az Energy-Efficient Ethernet (EEE)

IPv6 Features

IPv4/IPv6 Dual Protocol stack
IPv6 Address Types Stack: Unicast
IPv6 Neighbor Discovery:
Duplicate address
Address resolution
Unreachable neighbor detection
Stateless auto-configuration
Manual configuration
Remote IPv6 ping
IPv6 Telnet support
HTTP over IPv6
SNMP over IPv6
IPv6 Syslog support
IPv6 TFTP support
IPv6 MLD filter: MLD max-groups (throttling)
IPv6 ND snooping
MLD Snooping v1/v2
IPv6 source guard
DHCPv6 snooping
MVR6

Management

Switch Management:
CLI via console port or Telnet
Web management
SNMP v1, v2c, v3
IP clustering (32 members)
Firmware & Configuration:
Firmware upgrade via TFTP/HTTP/FTP server
Dual images
Multiple configuration files
Configuration file upload/download via TFTP/HTTP/FTP server
Firmware auto upgrade
RMON (groups 1, 2, 3 and 9)
BOOTP, DHCP client for IP address assignment
DHCP dynamic provision option 66,67
SNTP/NTP
DNS client
Event/Error Log
Syslog
SMTP
Supports LLDP (802.1ab)
sFlow v4, v5
Cable diagnostics
Traceroute
Traceroute6
(Optional) ECView Pro, a powerful network management software that maximizes the managed capabilities of Edgecore devices with:
Topology management
Performance management
Configuration management
Event management
SNMP management

Routing

IPv4 Static Route
RIP v1/v2
Traceroute
Traceroute6

OAM

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

Safety

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

Electromagnetic Compatibility

CE Mark
FCC Class A
CISPR Class A
BSMI

Environmental Specifications

Temperature:
0°C to 50°C (190 W PoE budget) standard operation
-40°C to 70°C (non-operating)
Humidity: 10% to 90% (Non-condensing)

Power Supply

Power input:
100 to 240 VAC, 50/60 Hz
AC/DC: 90 VAC~300 VAC, 50/60 Hz
Dying gasp

Warranty

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

For More Information

To find out more about Edgecore Networks Corporation products and solutions, visit 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.

Edgecore Networks Corporation is a subsidiary of Accton Technology Corporation, the leading network ODM company. The Edgecore data center switches are developed and manufactured by Accton.

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-LX5	1Gbps, Small Form Factor Pluggable (Distance: 5 km; Wavelength: 1310 nm)
ET4201-LX15	1Gbps, Small Form Factor Pluggable (Distance: 15 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: 500 m; Wavelength: 850 nm, DDM)
ET4202-LX	1Gbps, Small Form Factor Pluggable (Distance: 10 km; Wavelength: 1310 nm, DDM)
ECView Pro	Network Management Software
ET3201-FXP	100BASE-FX Multi mode LC Duplex SFP transceiver, up to 2 km (1310 nm)
ET3201-FX20	100BASE-FX Single mode LC Duplex SFP transceiver, up to 20 km (1310 nm)
ET3203-BX20	100BASE-FX Single mode LC Simplex SFP transceiver, up to 20 km Tx1310 nm/Rx1550 nm
ET3203-BX20D	100BASE-FX Single mode LC Simplex SFP transceiver, up to 20 km Tx1550 nm/Rx1310 nm

Preliminary