L2+/L3 Lite Gigabit Ethernet Access and 2 10G PoE and Non-PoE Switch
ECS4100 Series

ecCLOUD

The ECS4100 series 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 , IP cameras, VoIP phones, and other powered devices. It is also an ideal Gigabit access switch for SMB, enterprise, and campus networks. The 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 ECS4100 series is a high-performance Gigabit Ethernet Layer 2+ managed switch with 24/56/104/56 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 switch 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 switch 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 switch incorporates high energy efficiency in order to reduce the impact on the environment. The Green Ethernet power-saving design reduce the power consumption.

Enhanced Security
Port security limits the total number of devices from using aswitch 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.

Comprehensive QoS

The switch 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 switch supports IEEE 802.1ag and ITU-T Y.1731, allowing service providers to monitor end-to-end services, identify connectivity and performance issues, and isolate problems from a remote location without dispatching an engineer onsite.

The switch also provides the capability to monitor service availability, delay for verifying SLA conformance (for billing purposes) and providing advance indication of performance degradation before a service outage occurs.

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 switch 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

The switch 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.

PoE Features

The ECS4100-12PH provides 60 W ultra PoE and ECS4100-28P/52P provide 30 Watts of power to high power devices such as PTZ IP cam, VoIP phones, wireless access points, surveillance cameras, etc, all over existing Cat. 5 cables. The ECS4100-12PH/28P/52P switch delivers up to 180 W/190 W/370 W PoE Power budget.

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.

Product Model	ECS4100-12PH	ECS4100-28P	ECS4100-52P	ECS4100-28TC
Product Image				
Port				
RJ-45 10/100/1000BASE-T Ports	8 (PoE)	24 (PoE)	48 (PoE)	24
100/1000 SFP Ports	2	4	4	0
10/100/1000 Combo Ports	2	0	0	4
SFP+ 10 Gigabit Uplink Ports	0	0	0	0
GE Out-of-Band Management Port	No	No	No	No
RJ-45 Console Port	1	1	1	1
Performance				
Switching Capacity	24 Gbps	56 Gbps	104 Gbps	56 Gbps
Forwarding Rate	17.85 Mbps	41.7 Mbps	77.4 Mbps	41.7 Mbps
Flash Memory	32 MB	32 MB	32 MB	32 MB
DRAM	256 MB	256 MB	256 MB	256 MB
MAC Address Table Size	16 K	16 K	16 K	16 K
Jumbo Frames	12 KB	12 KB	12 KB	12 KB
Auto-negotiation, Auto-MDI/MDIX	Yes	Yes	Yes	Yes
Acoustics	48 dB (A) 0 dB (A) ≤ 70W PoE budget	53 dB (A)	N/A	0 dB (A), fanless
MTBF	841,327 hrs	366.322 hrs	358,479 hrs	1,199,394 hrs
PoE				
Ultra PoE 60 W	Yes	N/A	N/A	N/A
PoE+ based on IEEE 802.3bt/802.3af/802.3at	Yes	Yes	Yes	N/A
Auto disable after exceeding power budget	Yes	Yes	Yes	N/A
Dynamic Power Allocation	Yes	Yes	Yes	N/A
PoE Power Budget	180 W	190 W	370 W	N/A
Mechanical				
Dimension (W x D x H) cm	28 x 22 x 4.4	44 x 33 x 4.4	44 x 33 x 4.4	33 x 23 x 4.4
Weight	2381 g	3935 g	4397 g	2200 g
Power Supply				
100-240 VAC, 50-60 Hz	Yes	Yes	Yes	Yes
Max System Power Consumption (Watts)	230 W	260 W	480 W	20W
Environmental				
Operating Temperature	0ºC to 50ºC (180 W PoE Budget) 0ºC to 55ºC (120 W PoE Budget) ≤ 70 W PoE budget, fanless for silent operation	0ºC to 50ºC	0ºC to 50ºC	0ºC to 50ºC
Storage Temperature	-40ºC to 70ºC	-40ºC to 70ºC	-40ºC to 70ºC	-40ºC to 70ºC
Operating Humidity (non-condensing)	10% to 90%	10% to 90%	10% to 90%	10% to 90%
Storage Humidity (non-condensing)	10% to 90%	10% to 90%	10% to 90%	10% to 90%
Environmental Regulation Compliance: WEEE	Yes	Yes	Yes	Yes
Environmental Regulation Compliance: RoHS	Yes	Yes	Yes	Yes
Certification				
FCC Class A	Yes	Yes	Yes	Yes
CE	Yes	Yes	Yes	Yes
Safety Compliance: CB	Yes	Yes	Yes	Yes
Safety Compliance: UL	Yes	Yes	Yes	Yes
ecCloud Management	Supported	Supported	Supported	

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Product Model	ECS4100-12T	ECS4100-28T	ECS4100-52T
Product Image			
Port			
RJ-45 10/100/1000 BASE-T Ports	8	24	48
100/1000 SFP Ports	2	4	4
Combo Gigabit (RJ-45/SFP) Ports	2	0	0
SFP+ 10 Gigabit Uplink Ports	0	0	0
GE out-of-band Management Port	No	No	No
RJ-45 Console Port	1	1	1
Performance			
Switching Capacity	24 Gbps	56 Gpbs	104 Gpbs
Forwarding Rate	17.85 Mpps	41.6 Mpps	77.4 Mpps
Flash Memory	32 MB	32 MB	32 MB
DRAM	256 MB	256 MB	256 MB
MAC Address Table Size	16 K	16 K	16 K
Jumbo Frames	12 KB	12 K	12 K
Auto-negotiation, Auto-MDI/MDIX	Yes	Yes	Yes
Mechanical			
Rack Space	19"-1 RU	19"-1 RU	19"-1 RU
Dimension (W x D x H) cm	18 x 16.4 x 3.75	44 x 22 x 4.4	44 x 22 x 4.4
Weight	804 g	2.2 kg	2.5 kg
Acoustics	0 dB (A)	0 dB (A)	0 dB (A)
Power Supply			
100-240 VAC, 50/60 Hz	Yes (Rear Panel)	Yes (Front Panel)	Yes (Rear Panel)
Max System Power Consumption (Watts)	16 W	20 W	40 W
Environmental			
Operating Temperature	0ºC to 50ºC	0ºC to 50ºC	0ºC to 45ºC
Storage Temperature	-40ºC to 70ºC	-40ºC to 70ºC	-40ºC to 70ºC
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
BSMI	Yes	Yes	Yes
Safety Compliance: CB	Yes	Yes	Yes
Safety Compliance: UL	Yes	Yes	Yes
ecCloud Management	Supported	Supported	Supported

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
  BPDU Guard
  BPDU Filtering
  Root Guard
  BPDU Transparent
  Loopback Detection
- Non-Spanning Tree Loopback detection
- ITU-T G.8032 Ethernet Ring Protection Switching:
  Sub 50 msec convergence (ECS4100-12PH/28P/52P/28TC only)
  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
- Traffic Scheduling:
  Strict Priority
  Weighted Round Robin
  Strict + WRR
- Diffserv:
  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

Security

- User Security for Enterprise:
  IEEE 802.1X port based and MAC based authentication
  Dynamic VLAN Assignment, Dynamic QoS assignment
  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

Green Ethernet
- IEEE 802.3az Energy-Efficient Ethernet (EEE)
- Link-Up power saving
- No-Link power saving

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 and 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/SFTP server
  Dual images
  Multiple configuration files
  Configuration file upload/download via TFTP/HTTP/FTP/SFTP 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
- (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:
  Cross check
  Link trace
  Loop back
- ITU-T Y.1731 Performance and Throughput Management:

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:
  ECS4100-12PH:
    0ºC to 50ºC (180 W PoE Budget)
    0ºC to 55ºC (120 W PoE Budget)
    ≤ 70 W PoE budget, fanless for silent operation
  ECS4100-28P/28TC/52P: 0ºC to 50ºC standard operation
  ECS4100-12T/28T: 0º C to 50º C (32º F to 122º F) standard operating
  ECS4100-52T: 0º C to 45º C (32º F to 113º F) standard operating

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.

Ordering Information

Optional Accessories	Product Description
ET4202-SX	1Gbps, Small Factor Pluggable (Distance:550 m; Wavelength: 850 nm)
ET4202-LX	1Gbps, Small Factor Pluggable (Distance:10 km; Wavelength: 1310 nm)
ET4202-EX	1Gbps, Small Factor Pluggable (Distance:40 km; Wavelength: 1310 nm)
ET4202-ZX	1Gbps, Small Factor Pluggable (Distance:80 km; Wavelength: 1550 nm)
ET4202-RJ45	1Gbps, Small Factor Pluggable (Distance:100 m)
ecCloud Network Management Software	