L2+/Lite L3 Gigabit Ethernet Access / Aggregation Switch with 4 10G Uplinks

ECS4120 Series

The Edgecore ECS4120 switch series is a Gigabit Ethernet access switch with four 10G uplink ports. The switch is ideal for Internet Service Providers (ISPs) and Multiple System Operators (MSOs) to provide home users with triple-play services with up to Gigabit bandwidth. It is also an ideal Gigabit access switch for SMB, enterprise, and campus networks. The ECS4120 switch series is packed with features that bring high availability, comprehensive security, robust multicast control, and advance QoS to the network edge, while maintaining simple management. The switch also supports the most advance IPv6 management, IPv6 security, and IPv6 multicast control in accordance with the growth of IPv6 deployment. ISPs can expand their services from 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 ECS4120 Series is a high-performance Gigabit Ethernet L2+/L3 Lite managed switch with 128Gbps/176Gbps 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 built-in 10G SFP+ ports provide uplink flexibility, allowing the insertion of fiber or copper, Gigabit or 10G transceivers, to create up to 10 Gbps high-speed uplinks to servers or service provider, corporate, or campus networks, reducing bottlenecks and increasing the performance of the access network.

The Voice VLAN function automatically detects VoIP devices by OUI or LLDP and groups the voice traffic into a separate VLAN for better performance. It can also automatically change port priorities, so a higher CoS value can be assigned for guaranteed voice quality.

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 ECS4120 Series supports IEEE 802.3ad Link Aggregation Control Protocol (LACP). LACP increases bandwidth by automatically aggregating several physical links together as a logical trunk and offers load balancing and fault tolerance for uplink connections.

Continuous Availability-countinued

The ECS4120 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 50ms.

Reliability and Energy Efficiency

The fanless design of ECS4120-28T ensures noiseless operation and increases the reliability of the system.

The design of the ECS4120 Series 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 to 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.

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.

Secure Shell (SSH) and Secure Sockets Layer (SSL/HTTPS) encrypt Telnet and web access to the switch, providing secure network management.
The ECS4120 Series also supports both RADIUS and TACACS+ authentication methods to secure your network.

Comprehensive QoS
The ECS4120 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 ECS4120 Series supports Three Color Marker and Policing Single rate: Committed Information Rate (CIR) Two rate: CIR + Peak Information Rate (PIR) Traffic Policing: The switch drops or remarks the priority tags of packets when they exceed the burst size.

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 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.

Multicast VLAN Registration (MVR) is designed for applications such as Media-on-Demand that send multicast traffic across an Ethernet network.

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

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 ECS4120 Series 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 switch. You can also authorize access rights per user and account for all actions performed by administrators.

Service Monitoring and Management
The ECS4120 Series 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 and delay variation for verifying SLA conformance (for billing purposes) and providing advance indication of performance degradation before a service outage occurs.

Virtual Private Networks
The ECS4120 Series 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.

Datasheet

L2 Switch

Product Model		ECS4120-28T	ECS4120-28Fv2	ECS4120-28Fv2-I	ECS4120-52T
	Product Image				
Port	RJ-45 10/100/1000BASE-T Ports	24	0	0	48
	100/1000BASE-X SFP Ports	0	20	20	0
	Combo Gigabit (RJ-45/SFP) Ports	0	4	4	0
	SFP+ 10 Gigabit Uplink Ports	4	4	4	4
	GE Out-of-Band Management Port	No	1	1	No
	RJ-45 Console Port	1	1	1	1
Performance	Switching Capacity	128 Gpbs	128 Gpbs	128 Gpbs	176 Gpbs
	Forwarding Rate	95 Mpps	95 Mpps	95 Mpps	130 Mpps
	Flash Memory	256 MB	256 MB	256 MB	256 MB
	DRAM	512 MB	512 MB	512 MB	512 MB
	MAC Address Table Size	16 K	16 K	16 K	16 K
	Jumbo Frames	9 KB	9 KB	9 KB	9 KB
	Auto-negotiation, Auto-MDI/MDIX	Yes	Yes	Yes	Yes
PoE	Support on all Gigabit ports based on IEEE 802.3af	No	No	No	No
	PoE+ based on IEEE 802.3at	No	No	No	No
	Auto disable after exceeding power budget	No	No	No	No
	Dynamic Power Allocation	No	No	No	No
	PoE Power Budget	No	No	No	No
Mechanical	Rack Space	19"	19"	19"	19"
	Dimension (W x D x H) cm	44 x 22 x 4.4	44 x 22 x 4.4	44 x 22 x 4.4	44 x 27.9 x 4.4
	Weight	2.35 kg	3.32 kg	3.32 kg	3.72 kg
Power Supply	100-240 VAC, 50-60 Hz	Yes	Yes	Yes	Yes
	DC Power Input (-48~-60 V)	No	Yes	Yes	No
	Max System Power Consumption (Watts)	20 W	60 W	60 W	60 W
Environmental	Operating Temperature	0°C to 50°C	0°C to 50°C	-10°C to 65°C	0°C to 50°C
	Storage Temperature	-40°C to 70°C	-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%	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	Supported

L2 Features

- Tri-speed (10/100/1000BASE-T) copper interfaces
- Auto-negotiation for port speed and duplex mode
- Auto MDI/MDI-X
- 100M/1G fiber interface
  SFP ports support:
  IEEE 802.3z (1000BASE-SX/LX/LHX/ZX) transceivers
- 1G/10G fiber interface
  SFP+ ports support:
  IEEE 802.3ae changeable (10GBASE-SR/LR/ZR/ER),
  IEEE 802.3z (1000BASE-SX/LX/LHX/ZX) transceivers
  10G DAC/AOC
- Digital Diagnostic Monitoring (DDM) on 1G SFP and 10G SFP+ port
  Transceiver-threshold current/rx-power/temperature/tx-power/voltage/ high-low alarm and warning
- Flow Control:
  IEEE 802.3x for full duplex mode
  Back-Pressure for half duplex mode
- Jumbo frames: 9 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
  Non-revertive operation mode
  Multiple-ring topology
  Mulitiple instance
- 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 Networks (Q-in-Q):
  Selective QinQ
  VLAN Translation
  L2 Protocol tunneling (xSTP, CDP, VTP and 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

L2 Features-continued

- 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)

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
  Sticky MAC
  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
    Cipher:
    aes192-ctr
    aes256-ctr
    aes256-gcm@openssh.com
    chacha20-poly1305@openssh.com
    aes128-ctr
    aes128-gcm@openssh.com
    KEY
    ssh-rsa
    rsa-sha2-512
    rsa-sha2-256" in below
  SSL for HTTPS
  SFTP IPv4/ IPv6
  SNMPv3

Green Ethernet

- IEEE 802.3az Energy-Efficient Ethernet (EEE)

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

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 64Kbps ~ 1,000 Mbps
- Auto Traffic Control

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
- TACACS IPv6

Routing
- IP interface IPv4/v6: 256/128 (Shared)
- IPv4/IPv6 Static Route
- Host route IPv4/v6: 4K/2K
- Net route IPv4/v6: 512/128
- DHCP Server
- RIP v1/v2

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 IPv4/ IPv6
- DNS client
- Event/Error Log
- Syslog
- SMTP
- Support LLDP (802.1ab) IPv4/ IPv6
- sFlow v4, v5
- Cable diagnostics
- Traceroute
- Traceroute6
- DHCP server (8 pools, 512 IP addaress)
- TWAMP probe and responder

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:
  0ºC to 50ºC standard operation
  -10ºC to 65ºC (ECS4120-28Fv2-I)
  -40°C to 70°C (Non-Operating)
- Humidity: 10% to 90% (Non-condensing)

Power Supply
- Power input
  AC Power input: 100 to 240 VAC, 50/60 Hz, 1.0A
  DC power input: -48 ~ -60 VAC, 3.0 A
  Dying Gasp (ECS4120-28Fv2 and ECS4120-28Fv2-I only)

Optional Accessories	Product Description
ET4202-SX	1Gbps, Small Factor Pluggable (Distance:550 m; Wavelength: 850 nm)
ET4202-ZX	1Gbps, Small Factor Pluggable (Distance:80 km; Wavelength: 1550 nm)
ET4202-RJ45	1Gbps, Small Factor Pluggable (Distance:100 m)
ET5402-SR	10G SFP+, 850nm Multimode, 802.3ae 10GBASE-SR Compliance, 300 m, LC duplex, compatible with all Edge-Core SFP+ series switches
ET5402-LR	10G SFP+, 1310nm Singlemode, 802.3ae 10GBASE-LR compliance, 10 km, LC duplex, compatible with all Edge-Core SFP+ series switches
ET5402-RJ45	10G SFP+, 850nm Multimode, 802.3ae 10GBASE-SR Compliance, 300 m, LC duplex, compatible with all Edge-Core SFP+ series switches
ET5402-ER	10G SFP+, 1550nm Siglemode, 802.3ae 10GBASE-ER Compliance, 40 km, LC duplex, compatible with all Edge-Core SFP+ series switches
ET5402-AOC-xM	10G SFP+ AOC 3M cable, c-temp
ecCLOUD Network Management Software	

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.