ECS4120-28F-I

Enhanced Temperature L2+ Gigabit Ethernet Access / Aggregation Switch with 4 10G Uplinks

Product Overview

The Edgecore ECS4120-28F-I switch is an enhanced temperature 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 FTTH triple-play services with up to a Gigabit of bandwidth. The switch's enhanced temperature performance, from -10°C to +65°C, allows it to be deployed in roadside cabinets. The switch is also ideal for ISP/MSOs to aggregate Fast Ethernet and Gigabit Ethernet access switches with Gigabit fiber uplinks. The ECS4120-28F-I switch 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.

Key Features and Benefits

Performance and Scalability

The Edgecore ECS4120-28F-I is an enhanced temperature high-performance Gigabit Ethernet L2+ managed switch with 128 Gbps switching capacity. The switch delivers wire-speed switching performance on all Gigabit ports, taking full advantage of existing high-performance Gigabit fiber IADs, CPEs, and access switches with Gigabit fiber uplinks 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.

Reliability and Energy Efficiency

The design of the ECS4120-28F-I 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. The ECS4120-28F-I supports dual power input, both AC and DC for flexibility, as well as power redundancy for fault tolerance.

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 ECS4120-28F-I 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 ECS4120-28F-I 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.

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.

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 ECS4120-28F-I also supports both RADIUS and TACACS+ authentication methods to secure your network.

Key Features and Benefits

Comprehensive QoS
The ECS4120-28F-I 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 ECS4120-28F-I 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.

Private VLANs and Multicast VLAN Registration
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, DCHPv6 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 ECS4120-28F-I 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 ECS4120-28F-I 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, jitter, and dropped packets for verifying SLA conformance (for billing purposes) and providing advance indication of performance degradation before a service outage occurs.

Virtual Private Networks
The ECS4120-28F-I 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.

Features

Product Model	ECS4120-28F-I
Product Image	

Port		
	RJ-45 10/100/1000 BASE-T Ports	0
	100/1000 SFP Ports	20
	GE Combo Ports (RJ-45/SFP)	4
	SFP+10 Gigabit Uplink Ports	4
	GE out-of-band Management Port	1
	RJ-45 Console Port	1
Performance	Switching Capacity	128 Gpbs
	Forwarding Rate	95 Mpps
	Flash Memory	256 MB
	DRAM	512 MB
	MAC Address Table Size	16 K
	Jumbo Frames	9 KB
	Auto-negotiation, Auto-MDI/MDIX	O
Mechanical	Rack Space	19"
	Dimension (W x D x H) cm	44 x 22 x 4.4
	Weight	3.32 kg
Power Supply	100-240 VAC, 50/60 Hz	O
	1 DC power input	O
	Max System Power Consumption (Watts)	21.48 W
Environmental	Operating Temperature	-10ºC to 65ºC
	Storage Temperature	-40ºC to 70ºC
	Operating Humidity (non-condensing)	10% to 90%
	Storage Humidity (non-condensing)	10% to 90%
	Environmental Regulation compliance: WEEE	O
	Environmental Regulation compliance: RoHS	O
Certification	FCC Class A	O
	CE	O
	Safety Compliance: CB	O
	Safety Compliance: UL	O

Features

L2 Features

Dual-speed (100 Mbps and 1 Gbps) SFP fiber interfaces
Combo Gigabit ports
Either RJ45 or SFP port can be chosen at one time
Tri-speed (10/100/1000BASE-T) RJ45 copper interfaces
Auto-negotiation for port speed and duplex mode
Auto MDI/MDI-X
Dual-speed (100 Mbps and 1 Gbps) SFP fiber interfaces
Dual-speed (1 G and 10 G) fiber interfaces
SFP+ ports support:
   IEEE 802.3ae changeable (10GBASE-SR/LR/ZR/ER),
   IEEE 802.3z (1000BASE-SX/LX/LHX/ZX) transceivers, and 10G
     DAC/AOC
Digital Diagnostic Monitoring (DDM) on 10G SFP+ port only
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
   BPDU Guard
   BPDU filtering
   Root Guard
   BPDU transparent
   Loopback detection
Non-Spanning Tree Loopback detection
ITU-T G.8032 Ethernet Ring Protection
   Sub 50 msec convergence
   Revertive operation mode
   Multiple-ring network
VLANs:
   Supports 4K VLAN
   Port-based VLAN
   IEEE 802.1Q VLAN
   GVRP
   VLAN Trunking
   IEEE 802.1v Protocol-based VLAN
   IP Subnet-based VLAN
   MAC-based VLAN
   Traffic Segmentation
L2 Virtual Private VLAN
   Q-in-Q
   VLAN Translation
   L2 Protocol tunneling (xSTP, CDP, VTP & PVST+)
   CDP/PVST+ Filtering
Link Aggregation:
   Static Trunk
   IEEE 802.3ad Link Aggregation Control Protocol
   Trunk groups: 26, up to 8 GE/ 4 10G 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 Authentication
MVR (Multicast VLAN Registration)
   Supports 5 multicast VLANs
Port mirroring
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
Single/ Two rate Three color marker
Ingress policy map
Egress policy map
Rate Limiting (Ingress and Egress, per port base):
   GE: Resolution 64 Kbps ~ 1,000 Mbps
   10G: Resolution 64 Kbps ~ 10,000 Mbps
Auto Traffic Control

Security

Port security
IEEE 802.1X port based and MAC based authentication
Dynamic VLAN Assignment, Auto QoS
MAC authentication
Web authentication
Voice VLAN
Guest VLAN
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)
IPv6 ACL
DHCP Snooping
DHCP Option 82
DHCP Option 82 Relay
IP Source Guard
PPPoE IA
Dynamic ARP Inspection
Denial of Service
Login Security
RADIUS authentication
RADIUS accounting
RADIUS authorization
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)

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Features

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
IPv6 DNS Resolver
HTTP over IPv6
SNMP over IPv6
SSH over IPv6
IPv6 Syslog support
IPv6 SNTP support
IPv6 TFTP support
RA Guard
IPv6 ND Snooping
MLD Snooping v1/v2
IPv6 source guard
DHCPv6 snooping
DHCPv6 option 37*
MVR6

Management

Switch Management:
  CLI via console port or Telnet
  Web management
  SNMP v1, v2c, v3
Firmware and Configuration:
  Firmware upgrade via TFTP/HTTP/FTP server
  Multiple configuration files
  Configuration file upload/download via TFTP/HTTP/FTP server
RMON (groups 1, 2, 3 and 9)
BOOTP, DHCP client for IP address assignment
DHCP dynamic provision option 66,67*
SNTP
Event/Error Log
Syslog
SMTP
Supports LLDP (802.1ab)
IP clustering
sFlow v4, v5
Cable diagnostic
(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
IPv6 Static Route

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:
  -10°C to 65°C (Standard Operating)
  -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: 90VAC~300VAC, 50/60 Hz

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.

*Future Release

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Ordering Information

Optional Accessories	Product Description
ET4201-SX	1Gbps, Small Form Factor Pluggable (Distance: 550 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)
ET4201-RJ45	1000BASE-T RJ45 transceiver, 100 m
ET4202-SX	1Gbps, Small Form Factor Pluggable (Distance: 550 m; Wavelength: 850 nm, DDM)
ET4202-LX	1Gbps, Small Form Factor Pluggable (Distance:s10 km; Wavelength: 1310 nm, DDM)
ET4202-ZX	1Gbps, Small Form Factor Pluggable (Distance: 80 km; Wavelength: 1550 nm, DDM)
ET4203-BX20	1Gbps, SFP (Distance: 20 km; Wavelength: Tx1310 nm / Rx1490 nm)
ET4203-BX20D	1Gbps, SFP (Distance: 20 km; Wavelength: Tx1490 nm / Rx13100 nm)
ET4204-BX10	1Gbps, SFP (Distance: 10 km; Wavelength: Tx1310 nm / Rx1550 nm)
ET4204-BX10D	1Gbps, SFP (Distance: 10 km; Wavelength: Tx1550 nm / Rx1310 nm)
ET4204-BX10DDMi	1Gbps, SFP (Distance: 20 km; Wavelength: Tx1310 nm / Rx1550 nm, DDM)
ET4204-BX10DDDMi	1Gbps, SFP (Distance: 20 km; Wavelength: Tx1550 nm / Rx1310 nm, DDM)
ET5402-SR	10Gbps, Small Form Factor Pluggable (Distance: 3000 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)
ECView Pro	Network Management Software