

ECS4660-28F

L3 Gigabit Metro Ethernet Switch



Product Overview

The Edgecore ECS4660-28F is a standalone L3 Gigabit Metro Ethernet routing switch with 24 1000BASE-X SFP slots, two 10G XFP uplink slots, and two 10G module slots that can support two additional 10G uplinks. With up to 107Mpps performance, the ECS4660-28F is ideal for service provider aggregation deployment, providing wire-speed L2 switching and L3 unicast and multicast routing. To maintain high availability, the ECS4660-28F provides redundant power, a hot swappable fan tray, configuration rollback, and G.8032 ring protection.

Key Features and Benefits

High Availability

With IEEE 802.1w Rapid Spanning Tree Protocol, the Edgecore ECS4660-28F provides a loop-free network with redundant links to the core network and rapid convergence in less than 2 seconds. IEEE 802.1s Multiple Spanning Tree Protocol allows a spanning-tree instance per VLAN and Layer 2 load sharing on redundant links.

The ECS4660-28F 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 ECS4660-28F 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 Edgecore ECS4660-28F 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 across the stack. Traffic is prioritized according to 802.1p, DSCP, IP precedence and TCP/UDP port number to provide optimal performance to real-time applications. Weighted Round Robin (WRR) and strict priority ensure differential prioritization of packet flows and avoid congestion of ingress and egress queues.

With bidirectional rate-limiting, per port or per traffic class, the ECS4660-28F preserves network bandwidth and allows full control of network resources.

The ECS4660-28F supports Three Color Marking and Policing single rate: Committed Information Rate (CIR) Two Rate: CIR+ Peak Information Rate (PIR) Traffic Policing: Drop or remark the priority tag of packets exceeds burst size.

Advances Synchronization

The ECS4660-28F provides synchronization options optimized for cellular operators looking to backhaul their data and voice traffic from base stations to their core network over Ethernet transport. The ECS4660-28F supports bit-layer clock recovery solutions, IUT-T G.8261 and IEEE 1588v2 synchronous Ethernet, and provides a highly robust hop-by-hop frequency mechanism.

The Edgecore ECS4660-28F provides enhanced security features for connectivity and access control, including Access Control Lists (ACLs), authentication, and port-level security with IEEE 802.1X. ACL can be used to restrict access to sensitive network resources by denying packets based on L2/L2/L4 headers. SSH and RADIUS authentication protects management access to the switch, providing secure network management. IEEE 802.1X port-based access control ensures dynamic, port-based security and user authentication for network access.

IP source guard prevents a malicious user from spoofing or taking over another user's IP address by creating a binding table between client's IP, MAC address, port and VLAN.

Simplified Management

For IP multicast traffic, the ECS4660-28F uses IGMP snooping to provide fast client joins and leaves of multicast streams. It prevents flooding of IP multicast traffic and limits bandwidth-intensive video traffic to only the subscribers.

The ECS4660-28F supports IPv6 management functions for SNMP, HTTP, Telnet, TFTP, ICMP, SSH, RADIUS/TACACS+ authentication, and IPv6 QoS remapping when connecting to the switch. The ECS4660-28F can be managed through an industry-standard Command Line Interface (CLI) with a common industry look and feel that reduces training and operating costs. The switch also provides an easy-to-use web GUI interface through a standard web browser.

With four-group RMON, the ECS4660-28F can easily backup and restore firmware and configuration files via TFTP.

Advanced IPv4 and IPv6 Routing

The Edgecore ECS4660-28F supports hardware-based IPv4 and IPv6 routing for maximum performance. It provides a seamless migration path from IPv4 and IPv6 for future network upgrades and investment protection.

Advanced routing protocols such as RIP and OSPF provide dynamic routing by exchanging routing information with other L3 switches or routes. Multicast routing is supported under independent multicast protocols, including PIM-DM and PIM-SM. DVMRP is also supported to interconnect two multicast-enabled networks across non-multicast networks. VRRP prevents your system from failing by dynamically backing up multiple L3 switches for routing.

Features

Ports

- 24 100BASE-X SFP ports
- 2 10G XFP ports
- 2 10G optional expansion module slots
- 1 RJ-45 Craft (10/100BASE-T) port for system management
- 1 RJ-45 console port
- 1 DB-15 port for alarm input and output connector
- 1 Alarm cut-off (ACO) push button

Performance

- Switching Capability: 128 Gbps
- Forwarding Rate: 95 Mpps
- Packet Buffer Size: 3 MB
- MAC Address Table: 32 K

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
- BPDU transparent
- Loopback detection
- ITU-T G.8032 Ethernet Ring Protection
- VLANs:
 - Supports 4K VLANs
 - Port-based VLANs
 - IEEE 802.1Q VLANs
 - IEEE 802.1v Protocol-based VLANs and Subnet-based VLANs
 - MAC-based VLANs
 - VLAN translation
 - VLAN trunking
 - GVRP
 - Q-in-Q
- Link Aggregation:
 - Static trunks
 - IEEE 802.3ad Link Aggregation Control Protocol
 - Trunk groups: 32, up to 2~8 ports for Gigabit Ethernet ports, 2~4 ports for 10 Gigabit Ethernet ports
- IGMP Snooping:
 - IGMP v1/v2/v3 snooping
 - IGMP Proxy reporting
 - IGMP Filtering
 - IGMP Throttling
 - IGMP Immediate Leave
 - IGMP Querier
- MVR (Multicast VLAN Registration)
- Supports Jumbo frames up to 12 KB

L3 Features

- 12K host table and 12 net table
- 512 static routes
- 4K multicast table (shared with IPv6)
- Multi-netting, Super-netting (CIDR)
- Static route
- RIP v1/v2
- OSPF
- IGMP v1/v2/v3 and proxy
- PIM-DM, PIM-SM
- VRRP
- ARP/ARP proxy
- BGP
- UDP helper
- IPv6 hardware route:
 - 6 K host table and 4 K net table
 - 4 K multicast table (shared with IPv4) OSPFv3
 - MLD v1/v2

QoS Features

- Priority Queues: 8 hardware queues per port
- Traffic Classification:
 - IEEE 802.1p CoS
 - IP Precedence
 - DSCP
 - MAC access control lists (source/destination MAC, Ethertype, priority ID/VLAN ID)
 - IP standard access control lists (source IP)
 - IP extended access control lists (source/destination IP, protocol, TCP/UDP port number)
- Traffic Scheduling:
 - Strict Priority
 - Weighted Round Robin
 - Strict + WRR traffic scheduling
 - Weighted Random Early Detection
- Two Rate Three Color Marker
- Ingress traffic policing
- Egress traffic shaping
- Marking/remarking
- Rate Limiting (ingress and egress, per port base)
 - GE: Resolution 64 Kbps ~ 1000 Mbps
- Bundle Rate Control

Security

- Port security
- IEEE 802.1X port-based and MAC-based authentication
- Dynamic VLAN assignment
- ACL assignment
- QoS assignment
- Guest Vlan
- MAC authentication
- Web authentication
- DHCP snooping and option 82
- AAA (RADIUS/TACACS+ authentication/ Accounting)
- 2K ACL rules/ 256 rules per port
- Dynamic ARP Inspection

Features

OAM

- IEEE 802.3ah Link
- Link status/dying gasp clear
- Send critical event for all fans failure
- IEEE 802.1ag Connectivity Fault Management
 - Connectivity check
 - Loopback
- Linktrace ITU-T Y.1731 Performance and Throughput Management
 - Frame Delay
 - Frame Delay variation

Synchronous Ethernet

- ITU-T g.8262 Synchronous Ethernet

Green Ethernet

- Cable Diagnostics

Operating System of Switch

- EdgeCOS
- MEF9, MEF14 Comply

IPv6 Features

- IPv4/IPv6 dual protocol stack
- IPv6 Address Types Stack: Unicast
- IPv6 Neighbor Discovery
- SNMP over IPv6
- HTTP over IPv6
- Remote IPv6 ping
- SSHv6

Management

- Switch Management:
 - CLI via console port or Telnet
 - Web management
 - SNMP v1, v2c, v3
- Firmware and Configuration:
 - Firmware upgrade via TFTP/FTP/Xmodem
 - Multiple configuration files
 - Configuration file upload/download via TFTP/FTP server
- RMON (groups 1, 2, 3 and 9)
- BOOTP, DHCP client for IP address assignment
- DHCP dynamic provision option 66,67
- SNTP
- sFlow
- LLDP (802.1ab)
- DNS client/proxy
- Event/error log/system log
- (Optional) ECview Pro, powerful network management software that maximizes the managed capabilities of Edgecore devices with:
 - Topology Management
 - Performance Management
 - Configuration Management
 - Event Management
 - SNMP Management

Electromagnetic Compatibility

- CE Mark
- EN 61000-3-2/3
- FCC Class A
- VCCI Class A

Environmental Specifications

- Temperature:
 - IEC 68-2-14
 - 40°C to 65°C (Standard Operating)
 - 40°C to 70°C (Non-Operating)
- Humidity: 5% to 95% (Non-condensing)
- Vibration: IEC 68-2-36, IEC 68-2-6
- Shock: IEC 68-2-29
- Drop: IEC 68-2-32

Power Supply

- Dual Power Inputs:
 - AC: 100 V ~240 VAC, 50 Hz~60 Hz
 - DC: -48 V

Mechanical

- Dimensions (H x W x D): 1.5U height, 67 x 440 x 254 mm (2.64 x 17.32 x 10 in.)
- LED Indicators: Port, Uplink, System, Diagnostic
- Weight: 4.65 kg

Safety

- UL60950-1 & CSA 60950-1
- IEC 60950-1 & EN 60950-1

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.

© Copyright 2016 Edgecore Networks Corporation. The information contained herein is subject to change without notice. This document is for informational purposes only and does not set forth any warranty, expressed or implied, concerning any equipment, equipment feature, or service offered by Edgecore Networks Corporation. Edgecore Networks Corporation shall not be liable for technical or editorial errors or omissions contained herein.

Ordering Information

Optional Accessories	Product Description
ET3201-FXP	100BASE-FX, Small Form Factor Pluggable (Distance: 2 km; Wavelength: 1310 nm)
ET3201-FX20	100BASE-FX, Small Form Factor Pluggable (Distance: 20 km; Wavelength: 1310 nm)
ET4201-SX	1Gbps, Small Form Factor Pluggable (Distance: 500 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)
ET5302-SR	10G XFP transceiver, (Distance: 300 m; Wavelength: 850 nm), LC connector (Multi-mode)
ET5302-LR	10G XFP transceiver, (Distance: 10 km; Wavelength: 1310 nm), LC connector (Single-mode)
ET5302-ER	10G XFP transceiver, (Distance: 40 km; Wavelength: 1550 nm), LC connector (Single-mode)
ECView Pro	Network Management Software
ECM4000-28F-AC	AC power supply (100 V ~ 240 V)
ECM4000-28F-DC	DC power supply (-48 V)
EM4660-10GSFP+	10G SFP+ Single port module for ECS4660-28F