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 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 detected 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 advance 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. Weight 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 Market 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.

Enhanced Security

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, RASIUS/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.

Advance routing protocols such as RIP and OSPF provide dynamic routing by 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 1000BASE-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

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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.

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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