

ECS4660-28F

L3 Gigabit Metro Ethernet Switch



Product Overview

The Edge-Core 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 Edge-Core 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 Edge-Core 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. 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.

Advanced IPv4 and IPv6 Routing

The Edge-Core 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.

Enhanced Security

The Edge-Core 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 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.

Features

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

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 12KB

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:
 - 6K host table and 4K net table
 - 4K 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
- Auto QoS
- Auto ACL
- 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

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

Features

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 Features

Switch Management:

- CLI via console port or Telnet
- WEB management
- SNMP v1, v2c, v3

Firmware and Configuration:

- Firmware upgrade via TFTP server
- 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 Edge-Core 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 100V ~240VAC, 50Hz~60Hz
- DC -48V

Mechanical

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

Safety

UL 60950-1 & 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 Edge-Core Networks products and solutions, visit www.edge-core.com

About Edge-Core Networks

Edge-Core Networks is in the business of providing innovative network solutions. In the service provider network, in the data center or in the cloud, Edge-Core Networks delivers the software and systems that transform the way the world connects. Edge-Core Networks serves customers and partners worldwide. Additional information can be found at www.edge-core.com.

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* Future Release

Ordering Information

Optional Accessories

ET4201-SX
 ET4201-LX
 ET4201-LHX
 ET4201-ZX
 ET5302-SR
 ET5302-LR
 ET5302-ER
 Network Management System
 ECM4000-28F-AC
 ECM4000-28F-DC

Product Description

1 Gbps, Small Form Factor Pluggable (Distance: 500 m; Wavelength: 850 nm)
 1 Gbps, Small Form Factor Pluggable (Distance: 10 km; Wavelength: 1310 nm)
 1 Gbps, Small Form Factor Pluggable (Distance: 40 km; Wavelength: 1310 nm)
 1 Gbps, Small Form Factor Pluggable (Distance: 80 km; Wavelength: 1550 nm)
 10G XFP transceiver, 300m, 850nm, LC connector (Multi-mode)
 10G XFP transceiver, 10km, 1310nm, LC connector (Single-mode)
 10G XFP transceiver, 10km, 1550nm, LC connector (Single-mode)
 ECView Pro Network Management Software
 AC Power supply(100V~240V) for ECS4660-28F
 DC Power supply(-48V) for ECS4660-28F