ECS5520-18X/ECS5520-18T*

L2 10G Ethernet Aggregation Switch with 2 40G Uplinks

Product Overview

The ECS5520 series consists of two switches with 16-port 10GbE SFP+ or 10GBaseT and 2-port 40GbE uplink, they are designed for Carrier/Enterprise Aggregation and small Data Center Top of Rack. ECS5220 series is the ideal solution for traditional three tier Aggregation or Core and folded Clos architectures, serving with a 2:1 oversubscription. The ECS5520-18X/18T switch is packed with features that bring high availability, comprehensive security, robust multicast control, and advance QoS to network aggregation, 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 ECS5520-18X/ECS5520-18T is a high-performance 10 Gigabit Ethernet Layer 2+ managed switch with 480 Gbps switching capacity. The switch delivers wire-speed switching performance on all 10 Gigabit ports, taking full advantage of aggregating the high-performance Gigabit access switch with 10 Gigabit uplink, TOR switch for 10G Servers rack etc, significantly improving the responsiveness of applications, file and multimedia transfer times.

The two built-in 40G QSFP+ ports provide uplink flexibility, allowing the insertion of fiber 40G transceivers, to create up to 40Gbps high-speed uplinks to core or spine switch of service provider, corporate, campus networks, reducing bottlenecks and increasing the performance of the access network. With 40G to 4 10G SFP+ breakout cable, user can increase the 10G SFP+ port to 24.

The ECS5520-18X/ECS5520-18T provides dual hot swappable, load sharing power supply to ensure the reliability of switch. The airflow is from front to back and there is temperature sensor for fan speed control. .

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 ECS5520-18X/ECS5520-18T 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 ECS5520-18X/ECS5520-18T 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

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 users 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 ECS5520-18X/ECS5520-18T also supports both RADIUS and TACACS+ authentication methods to secure your network.

Comprehensive QoS

The ECS5520-18X/ECS5520-18T 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.

ECS5520-18X/ECS5520-18T 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 VLAN Registration (MVR) is designed for applications such as Media-on-Demand that send multicast traffic across an Ethernet network.

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.

IPv6 Support

The switch supports a number of IPv6 features, including IPv6 Management, DCHPv6 Snooping with Option 37, IPv6 Source Guide.

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 ECS5520-18X/ECS5520-18T 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 switches. Access rights can be authorized per user and account for all actions performed by administrators.

Service Monitoring and Management (Future)

The ECS5520-18X/ECS5520-18T 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 ECS5520-18X/ECS5520-18T 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.

ECS5520-18X/ECS5520-18T Product Specifications

www.edge-core.com

Features

Product Model		ECS5520-18X	ECS5520-18T
Product Image			
Port	10G SFP+ Ports	16	0
	10GBaseT Ports	0	16
	40G QSFP+ Ports	2	2
	GE out of band Management Port	Yes	Yes
	RJ-45 Console Port	1	1
	USB port	1	1
Performance	Switching Capacitny	480 Gbps	480 Gbps
	Forwarding Rate	357.12 Mpps	357.12 Mpps
	Flash Memory	1GB NAND, 32MB SPI NOR	1GB NAND, 32MB SPI NOR
	DRAM	2GB	2GB
	MAC Address Table Size	64K (shared with L3 table)	64K (shared with L3 table)
	Jumbo Frames	10 KB	10 KB
	Auto-negotiation, Auto-MDI/MDIX (Copper port)	Yes	Yes
Mechanical	Rack Space	19”	19”
	Dimension (W x D x H)	438.4 x280 x 43.4 mm	438.4 x280 x 43.4 mm
	Weight	3.9 kg	NA kg
Power Supply	AC power supply module (100-240 VAC, 50/60 Hz)	1 (Optional 2nd Power module for redundancy)	1 (Optional 2nd Power module for redundancy)
	DC power module (-36- -72VDC)	Yes (Optional)	Yes (Optional)
	Max System Power Consumption (Watts)	88.16 W	? W
	Dying gasp	No	No
Environment	Operating Temperature	0ºC to 50ºC	0ºC to 50ºC
	Storage Temperature	-40ºC to 70ºC	-40ºC to 70ºC
	Operating Humidity (non-condensing)	5% to 95%	5% to 95%
	Storage Humidity (non-condensing)	5% to 95%	5% to 95%
	Environmental Regulation compliance: WEEE	Yes	Yes
	Environmental Regulation compliance: RoHS	Yes	Yes
Certification	FCC Class A	Yes	Yes
	CE	Yes	Yes
	Safety Compliance: CB	Yes	Yes
	Safety Compliance: UL	Yes	Yes

ECS5520-18X/ECS5520-18T Product Specifications

Features

L2 Features

Dual-speed(1G and 10G) fiber interfaces
SFP+ ports support:
- IEEE 802.3ae (10GBASE-SR/LR/ZR/ER),
- 10G DAC/AOC
- IEEE 802.3z (1000BASE-SX/LX/LHX/ZX)
- Digital Diagnostic Monitoring (DDM) on 10G SFP+ port only

10GBASE-T copper interfaces
Auto-negotiation for port speed and duplex mode
Auto MDI/MDI-X

40G QSFP+ fiber interface

Flow Control:
- IEEE 802.3x for full duplex mode
- Back-Pressure for half duplex mode

Jumbo frames 10KB

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
- 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
- L2 Protocol tunneling (xSTP, CDP, VTP & PVST+)
- CDP/PVST+ Filtering

Link Aggregation:
- Static Trunk
- IEEE 802.3ad Link Aggregation Control Protocol
- Trunk groups: 12 up to 8 10G/ 2 40G ports per group
- Load Balancing: SA+DA, SA, DA, SIP+DIP, SIP, DIP

MLAG

IGMP Snooping:
- IGMP v1/v2/v3 snooping
- IGMP Proxy reporting
- IGMP Filtering
- IGMP Throttling
- IGMP Immediate Leave
- IGMP Querier

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)
- 10G: Resolution 64Kbps ~ 10,000Mbps

Auto Traffic Control

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
- DHCP Snooping
- DHCP Option 82
- IP Source Guard
- PPPoE IA

- 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

Network Security
- Port security
- Dynamic ARP Inspection
- Denial of Service Protection
- CPU Guard
- CPU/Memory threshold and alarm

Management Security
- 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

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ECS5520-18X/ECS5520-18T Product Specifications

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*

Management

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

Firmware & 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)
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 (only ECS5520-18T)

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
VCCI Class A
BSMI

Environmental Specifications

Temperature:
- 0℃ to 50℃ (Standard Operating)
- -40℃ to 70℃ (Non-Operating)

Humidity: 5% to 95% (Non-condensing)

Power Supply

Power input
- AC power supply module (100 to 240 VAC, 50/60 Hz)
- DC power supply module (-36 to -72 VDC)

Warranty

Refer to Edgecore Website for warranty policy

* Future Release

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Ordering Information

Optional Accessories	Product Description
ET4201-SX	1Gbps, Small Form Factor Pluggable (Distance: 550m; Wavelength: 850nm)
ET4201-LX	1Gbps, Small Form Factor Pluggable (Distance: 10km; Wavelength: 1310nm)
ET4201-RJ45	1000BASE-T RJ45 transceiver, 100m
ET4202-SX	1Gbps, Small Form Factor Pluggable (Distance: 500 m; Wavelength: 850 nm, DDM)
ET5402-SR	10Gbps, Small Form Factor Pluggable (Distance: 300 m; Wavelength: 850 nm)
ET5402-LR	10Gbps, Small Form Factor Pluggable (Distance: 10 km; Wavelength: 1310 nm)
ET5402-DAC-1M	10 Gigabit SFP+ DAC 1m cable
ET5402-DAC-3M	10 Gigabit SFP+ DAC 3m cable
ET5402-DAC-5M	10 Gigabit SFP+ DAC 5m cable
ET5402-AOC-3M	10 Gigabit SFP+ AOC 3m cable
ET5402-AOC-5M	10 Gigabit SFP+ AOC 5m cable
ET5402-AOC-7M	10 Gigabit SFP+ AOC 7m cable
ET5402-AOC-10M	10 Gigabit SFP+ AOC 10m cable
ET6402-40DAC-1M	40G to 40G DAC cable, QSFP+ DAC cable, 1m
ET6402-40DAC-3M	40G to 40G DAC cable, QSFP+ DAC cable, 3m
ET6402-10DAC-1M	40G to 4 10G DAC cable, QSFP+ DAC- 4*SFP+DAC Cable, 1m
ET6402-10DAC-3M	40G to 4 10G DAC cable, QSFP+ DAC- 4*SFP+DAC Cable, 3m
ET6402-10DAC-5M	40G to 4 10G DAC cable, QSFP+ DAC- 4*SFP+DAC Cable, 5m
ET6402-10AOC-5M	40G to 4 10G AOC cable, QSFP+ AOC- 4*SFP+AOC Cable, 5m
ET6402-10AOC-7M	40G to 4 10G AOC cable, QSFP+ AOC- 4*SFP+AOC Cable, 7m
ET6402-10AOC-10M	40G to 4 10G AOC cable, QSFP+ AOC- 4*SFP+AOC Cable, 10m
ET6402-10AOC-15M	40G to 4 10G AOC cable, QSFP+ AOC- 4*SFP+AOC Cable, 15m
ET6402-40AOC-3M	40G to 40G AOC cable, QSFP+ AOC cable, 3m
ET6402-40AOC-5M	40G to 40G AOC cable, QSFP+ AOC cable, 5m
ET6402-40AOC-7M	40G to 40G AOC cable, QSFP+ AOC cable, 7m
ET6402-40AOC-10M	40G to 40G AOC cable, QSFP+ AOC cable, 10m
ET6402-40AOC-15M	40G to 40G AOC cable, QSFP+ AOC cable, 15m
ET6402-40AOC-30M	40G to 40G AOC cable, QSFP+ AOC cable, 30m
ET6401-LR4	40G QSFP+ long range transceiver
ET6401-SR4	40G QSFP+ short range transceiver

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