ECS5520-18X/ECS5520-18T

L2+/Lite L3 10G Ethernet Aggregation Switch with 2 40G Uplinks

***Advanced L3 Routing (RIP, OSPF, VRRP, BGP, PIM) Support by License**

Product Overview

The ECS5520 series consists of two switches with sixteen 10GbE SFP+ ports or 10GBASE-T ports and two 40GbE uplink ports. The switches are designed for carrier/enterprise aggregation or small data center top-of-rack. The ECS5520 series is an ideal solution for traditional three-tier aggregation or core topologies and folded-Clos architectures, serving with a 2:1 oversubscription. The ECS5520 switches are 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.

*Advanced L3 routing (such as RIP, OSPF, VRRP, BGP, and PIM) supported by *LIC-ECS5520-LAYER3 license installed with software version V3.4.8.243 or above.

L2+/Lite L3 Gigabit Ethernet Switch

Key Features and Benefits

Performance and Scalability

The Edgecore ECS5520-18X/ECS5520-18T is a high-performance 10 Gigabit Ethernet Layer 2+/Lite L3 managed switch with 480 Gbps switching capacity. The switch delivers wire-speed switching performance on all 10GbE ports, taking full advantage of aggregating high-performance Gigabit access switches with 10G uplinks, or TOR switches with links to 10G rack servers etc, significantly improving the responsiveness of applications as well as file and multimedia transfer times.

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

The ECS5520-18X/ECS5520-18T provides dual hot swappable, load sharing power supplies to ensure the reliability of the switch. The airflow is from front to back and there is a 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 to 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.

Key Features and Benefits

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.

The 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.

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.

*Advanced L3 Routing Delivers Network Design Flexibility

The ECS5520-18X/ECS5520-18T supports advanced IPv4 and IPv6 Layer 3 routing with LIC-ECS5520-LAYER3 license installed on software version V3.4.8.243 or above. Advanced L3 routing features include RIPv1/v2, RIPng, OSPFv2/v3, IGMP v1/v2/v3 proxy, VRRP, BGP4+, PIM-SM/DM, and PIM-SM6/DM6. It also provides IP Clustering as an additional management feature.

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ECS5520-18X/ECS5520-18T Product Specifications

www.edge-core.com

Product Model		ECS5520-18X	ECS5520-18T
	Product Image		
Port	10G SFP+ Ports	16	0
	10GBASE-T Ports	0	16
	40G QSFP+ Ports	2	2
	GE out-of-band Management Port	1	1
	RJ-45 Console Port	1	1
	USB Port	1	1
Performance	Switching Capacity	480 Gpbs	480 Gpbs
	Forwarding Rate	357.12 Mpps	357.12 Mpps
	Flash Memory	1GB NAND, 32MB SPI NOR	1GB NAND, 32MB SPI NOR
	DRAM	2 GB	2 GB
	MAC Address Table Size	64K (shared with L2, multicast, L3 table)	64K (shared with L3 table)
	Jumbo Frames	10 KB	10 KB
	Auto-negotiation, Auto-MDI/MDIX (Copper port)	Auto-MDI/MDIX (Copper port) only	Yes
Mechanical	Rack Space	19"	19"
	Dimension (W x D x H) cm	43.84 x 28 x 4.34	43.84 x 28 x 4.34
	Weight	3.9 kg (8.6 lb) with 1 PSU	4.1 kg (9.04 lb) with 1 PSU
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)	132 W	132 W
	Dying Gasp	No	No
Environmental	Operating Temperature	0°C to 50°C	0°C to 50°C
	Storage Temperature	-40°C to 70°C	-40°C to 70°C
	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
Layer 3 Routing	Base IPv4/IPv6 L3 Routing	Yes (Static route support)	
	*Advanced IPv4/IPv6 L3 Routing	With License (RIP, OSPF, VRRP, BGP, PIM, IGMP Proxy)	

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ECS5520-18X/ECS5520-18T Product Specifications

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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+ ports only

10GBASE-T copper interfaces (ECS5520-18T only)
Auto-negotiation for port speed and duplex mode (ECS5520-18T only)
Auto MDI/MDI-X (ECS5520-18T only)
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 VLANs
- Port-based VLANs
- IEEE 802.1Q VLANs
- GVRP
- VLAN trunking
- IEEE 802.1v protocol-based VLANs
- IP subnet-based VLANs
- MAC-based VLANs
- 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 (v2.0) for secure Telnet
- SSL for HTTPS
- SNMPv3

Routing

IPv4 static route
IPv6 static route

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ECS5520-18X/ECS5520-18T Product Specifications

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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

Management

Switch Management:
• CLI via console port or Telnet/SSH
• 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)
DHCP client for IP address assignment
DHCP dynamic provision Option 66,67
SNTP
Event/error log
Syslog
SMTP
Supports LLDP (802.1ab)
sFlow v4, v5
Cable diagnostic (only ECS5520-18T)
IP Clustering*

OAM

IEEE 802.3ah link

Advanced L3 Routing*

RIPv1/v2, RIPng
OSPF v2, v3
BGP4+
VRRP
IGMP v1, v2, v3 Proxy
PIM-DM/SM
PIM-DM6/SM6

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°C to 50°C (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

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
GW-T150WV12	150 W AC power supply module (100 to 240 VAC, 50/60 Hz)
YM-1151E	150 W DC power supply module (-36 to -72 VDC)
ET4201-SX	1 Gbps, Small Form Factor Pluggable (Distance: 550 m; Wavelength: 850 nm)
ET4201-LX	1 Gbps, Small Form Factor Pluggable (Distance: 10 km; Wavelength: 1310 nm)
ET4201-LHX	1 Gbps, Small Form Factor Pluggable (Distance: 40 km; Wavelength: 1310 nm)
ET4201-ZX	1 Gbps, Small Form Factor Pluggable (Distance: 80 km; Wavelength: 1550 nm)
ET4201-RJ45	1000BASE-T RJ-45 transceiver, 100 m
ET4202-SX	1 Gbps, Small Form Factor Pluggable (Distance: 500 m; Wavelength: 850 nm, DDM)
ET4202-LX	1 Gbps, Small Form Factor Pluggable (Distance: 10 km; Wavelength: 1310 nm, DDM)
ET4203-BX20	1 Gbps, SFP (Distance: 20 km; Wavelength: Tx1310 nm / Rx1490 nm)
ET4203-BX20D	1 Gbps, SFP (Distance: 20 km; Wavelength: Tx1490n m / Rx13100 nm)
ET5402-SR	10 Gbps, SFP+ (Distance: 300 m; Wavelength: 850 nm)
ET5402-LR	10 Gbps, SFP+ (Distance: 10 km; Wavelength: 1310 nm)
ET5402-ER	10 Gbps, SFP+ (Distance: 40 km; Wavelength: 1550 nm)
ET5402-RJ45	10GBASE-T SFP+, RJ-45 transceiver, 30 m
ET5303-BX10	10 Gbps, SFP+ (Distance: 10 km; Wavelength: Tx1270 nm / Rx1330 nm)
ET5303-BX10D	10 Gbps, SFP+ (Distance: 10 km; Wavelength: Tx1330 nm / Rx12700 nm)
ET5402-DAC-1M	10 Gigabit SFP+ DAC cable, 1 m
ET5402-DAC-3M	10 Gigabit SFP+ DAC cable, 3 m
ET5402-DAC-5M	10 Gigabit SFP+ DAC cable, 5 m
ET5402-AOC-3M	10 Gigabit SFP+ AOC cable, 3 m
ET5402-AOC-5M	10 Gigabit SFP+ AOC cable, 5 m
ET5402-AOC-7M	10 Gigabit SFP+ AOC cable, 7 m
ET5402-AOC-10M	10 Gigabit SFP+ AOC cable, 10 m
ET6401-LR4	40G QSFP+ long reach transceiver, 10 km over SMF, LC connector, DDM
ET6401-PLR4 (PSM4)	40G QSFP+ long reach transceiver, 10 km over SMF, MPO connector, DDM
ET6402-40DAC-1M	40G to 40G DAC cable, QSFP+ DAC cable, 1 m
ET6402-40DAC-3M	40G to 40G DAC cable, QSFP+ DAC cable, 3 m
ET6402-10DAC-1M	40G to 4 10G DAC cable, QSFP+ DAC- 4*SFP+DAC Cable, 1 m
ET6402-40AOC-3M	40G to 40G AOC cable, QSFP+ AOC cable, 3 m
ET6402-10AOC-3M	40G to 4 10G SFP+ AOC cable, QSFP+ AOC breakout cable, 3 m
ET6401-SR4	40G QSFP+ short range transceiver 100 m
*LIC-ECS5520-LAYER3	ECS5520 Advanced L3 Routing License

Asterisks (*) in this datasheet indicate important notes: all are related to with LIC-ECS5520-LAYER3 license.

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