AS5812-54X-EC
AS5812-54T-EC
L3 10G Ethernet Aggregation/TOR Switch with 6 40G Uplinks

Product Overview

The AS5812-EC series consists of two switches with 48-port 10GbE SFP+ or 10GBASE-T and 6-port 40GbE uplink, they are designed for Carrier/Enterprise Aggregation and Data Center Top of Rack. AS5812-EC series is the ideal solution for traditional three tier Aggregation or Core and folded CLOS architectures, serving with 2:1 oversubscription. . The AS5812-54X-EC/54T-EC 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 L2 VPNs, and advanced OAM (Operations, Administration, and Maintenance) functions to ensure service-level agreements.

Key Features and Benefits

Performance and Scalability

The Edgecore AS5812-54X-EC/54T-EC is a high-performance 10 Gigabit Ethernet Layer 3 managed switch with 1.44 Tbps 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 6 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.

The AS5812-54X-EC/54T-EC provides dual hot swappable, load sharing power supply to ensure the reliability of switch. The airflow is from front to back.

The AS5812-54X-EC/54T-EC supports hot-swappable 4+1 redundant fans for reliability. 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 AS5812-54X-EC/54T-EC 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 AS5812-54X-EC/54T-EC supports MLAG (Multi-chassis link aggregation). It allows link aggregation of the links located in different switches to a core switch, provide redundant path if one of the switch fail and provides traffic load balancing between peer links.

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 AS5812-54X-EC/54T-EC also supports both RADIUS and TACACS+ authentication methods to secure your network.

Key Features and Benefits

Comprehensive QoS

The AS5812-54X-EC/54T-EC 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.

AS5812-54X-EC/54T-EC 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 snooping 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.

IPv6 Support

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

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 AS5812-54X-EC/54T-EC 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) via RADIUS, TACACS+, enables centralized control of the switches.

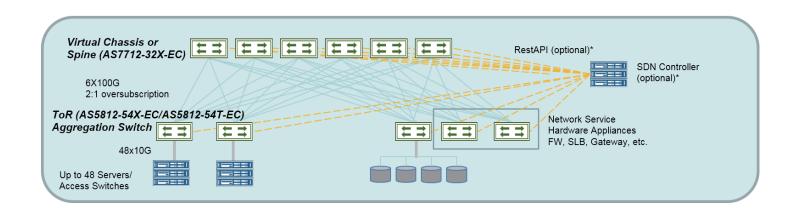### Service Monitoring and Management

The AS5812-54X-EC/54T-EC 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 AS5812-54X-EC/54T-EC 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.

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Feature

Product Model	AS5812-54X-EC	AS5812-54T-EC
Product Image		
Port		
10G SFP+ Ports	48	0
10GBASE-T Ports	0	48
40G QSFP+ Ports	6	6
GE out of band Management Port	Yes	Yes
RJ-45 Console Port	1	1
USB port	1	1
Performance		
Switching Capacity	1.44 Tbps	1.44 Tbps
Forwarding Rate	1 Bpps	1 Bpps
CPU Module	Intel Atom C2538 quad-core 2.4GHz x86 processor	Intel Atom C2538 quad-core 2.4GHz x86 processor
Packet Buffer	16 MB	16 MB
Flash Memory	32MB SPI NOR, 32GB mSATA	32MB SPI NOR, 32GB mSATA
DRAM	8 GB S0-DIMM DDR3	8 GB S0-DIMM DDR3
MAC Address Table Size	104 K	104 K
Jumbo Frames	9 KB	9 KB
Auto-negotiation, Auto-MDI/MDIX	NA	Yes
Mechanical		
Rack Space	19"-1RU	19"-1RU
Dimension (W x D x H) cm	44.3 x47.3 x 4.34 cm	44.3 x47.3 x 4.34 cm
Weight	8.95 kb	9.5 kg
Power Supply		
AC power supply module (100-240 VAC, 50/60 Hz)	2 Power module for redundancy	2 Power module for redundancy
DC power module (-48- -72 VDC)	Yes (Optional)	Yes (Optional)
Max System Power Consumption (Watts)	282 W	384 W
Environmental		
Operating Temperature	0ºC to 40ºC	0ºC to 40ºC
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

Feature

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/1000BASE-T copper interfaces
    Auto-negotiation for port speed and duplex mode
    Auto MDI/MDI-X
40G QSFP+ fiber interface
    40G DAC
    40GBASE-SR4/LR4
    40G to 4 10G DAC or AOC breakout cable
Flow Control:
    IEEE 802.3x for full duplex mode
Jumbo frames 9KB
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), 32 instances
    BPDU Guard
    BPDU filtering
    Root Guard
VLANs:
    Supports 4K VLAN
    Port-based VLAN
    IEEE 802.1Q VLAN
    Traffic Segmentation
L2 Virtual Private VLAN
    Q-in-Q
    L2 Protocol tunneling (xSTP, CDP, VTP & PVST+)
Link Aggregation:
    Static Trunk
    IEEE 802.3ad Link Aggregation Control Protocol
    Trunk groups: 16 up to 8 10G/ 6 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
    Port mirroring
    Remote port mirror (RSPAN)

OAM

IEEE 802.1ag Connectivity Fault Management
    Connectivity check
    Loopback
    Link trace
ITU-T Y.1731 Performance and Throughput Management
    Frame Delay
    Frame Delay variation

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

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
HTTP over IPv6
SNMP over IPv6
SSH over IPv6
IPv6 Syslog support
IPv6 SNTP support
IPv6 TFTP support
MLD Snooping v1/v2
RA Guard
IPv6 ND Snooping
IPv6 Source Guard
DHCPv6 Snooping
DHCPv6 option 37

Security

User Security for Enterprise
    IEEE 802.1X port based and MAC based authentication
    Dynamic VLAN Assignment, Auto QoS
    Guest VLAN
    MAC authentication
    Web authentication
User Security for ISP/MSO
    DHCP Snooping
    DHCP Option 82
    IP Source Guard
    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

Feature

Network Security
Port security
Dynamic ARP Inspection
CPU Guard
CPU/Memory threshold and alarm

Management Security
Login Security
RADIUS authentication
TACACS + authentication
Management Interface Access Filtering (SNMP, WEB, Telnet)
SSH (v2.0) for security Telnet
SSL for HTTPS
SNMPv3

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
Supports LLDP (802.1ab)
sFlow v4, v5

Routing
L3 Features IPv4
Multi-netting
CIDR (Classless Inter-Domain Routing)
Unicast Routing:
   Static Routes (512)
   Floating Route, Null route
   RIPv1/v2
   OSPFv2 (include RFC2328 PDC Encryption, RFC1370 Virtual Link, RFC3101 Route Aggregation, RFC1365 Route Filtering)
   BGP4+
   Equal Cost multipath routing (ECMP)
   IPv4 L3 Routes: 16K
Multicast Routing:
   PIM-DM
   PIM-SM
IGMP v1/v2/v3
IGMP v2/v3 Proxy
IP Redundancy: VRRP RFC3768
DHCP Relay

L3 Features IPv6
IPv6 Unicast Routing:
   Static Routes
   OSPFv3
IPv6 L3 Routes: 8K
Equal Cost multipath routing (ECMP)
MLD v1/v2
IPv6 Multicast Routing:
   PIM6-DM
   PIM6-SM
DHCPv6 Relay

Data Center Features
ONIE software installer
802.1Qbb (PFC)
802.1Qau (ECN)
802.1Qaz (ETS)
DCBx
MLAG
VxLAN

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
CCC

Environmental Specifications
Temperature:
   0°C to 40°C (Standard Operating)
   -40°C to 70°C (Non-Operating)
Humidity: 5% to 95% (Non-condensing)
TAA Compliant

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. Additionalinformation 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

Base Model: AS5812-54X-EC; 48 x 10G SFP+ + 6 x 40G QSFP+; ONIE software installer + EdgeCOS

Model Number	CPU Module	PSU	Airflow	Region (power cord)
5812-54X-EC-AC-F	Intel Atom C2538 processor	dual AC PSUs	port-to-power airflow	
5812-54X-EC-AC-F-EU	Intel Atom C2538 processor	dual AC PSUs	port-to-power airflow	Europe
5812-54X-EC-AC-F-UK	Intel Atom C2538 processor	dual AC PSUs	port-to-power airflow	UK
5812-54X-EC-AC-F-US	Intel Atom C2538 processor	dual AC PSUs	port-to-power airflow	N. America
5812-54X-EC-AC-F-JP	Intel Atom C2538 processor	dual AC PSUs	port-to-power airflow	Japan
5812-54X-EC-48V-F	Intel Atom C2538 processor	dual 48 VDC PSUs	port-to-power airflow	
5812-54X-EC-12V-F	Intel Atom C2538 processor	one 12 VDC Power Input	port-to-power airflow	

Base Model: AS5812-54T-EC; 48 x 10GBASE-T + 6 x 40G QSFP+; ONIE software installer + EdgeCOS

Model Number	CPU Module	PSU	Airflow	Region (power cord)
5812-54T-EC-AC-F	Intel Atom C2538 processor	dual AC PSUs	port-to-power airflow	
5812-54T-EC-AC-F-EU	Intel Atom C2538 processor	dual AC PSUs	port-to-power airflow	Europe
5812-54T-EC-AC-F-UK	Intel Atom C2538 processor	dual AC PSUs	port-to-power airflow	UK
5812-54T-EC-AC-F-US	Intel Atom C2538 processor	dual AC PSUs	port-to-power airflow	N. America
5812-54T-EC-AC-F-JP	Intel Atom C2538 processor	dual AC PSUs	port-to-power airflow	Japan
5812-54T-EC-48V-F	Intel Atom C2538 processor	dual 48 VDC PSUs	port-to-power airflow	
5812-54T-EC-12V-F	Intel Atom C2538 processor	one 12 VDC Power Input	port-to-power airflow	
PSU-AC-400-F		400 W AC Power Supply FRU	power-to-port airflow	no power cord
PSU-AC-400-B		400 W AC Power Supply FRU	power-to-port airflow	no power cord
PSU-48V-400-F		400 W -48 VDC Power Supply	port-to-power airflow	no power cord
PSU-48V-400-B		400 W -48 VDC Power Supply	power-to-port airflow	no power cord
PSU-12V-650		650 W 12 VDC Power Supply with 5 V output		
FAN-1U-1x1D-F		Fan Tray FRU	port-to-power airflow	
FAN-1U-1x1D-B		Fan Tray FRU	power-to-port airflow	
CBL-PWR-US	AC Power Cable - US (125 V/13 A, 1830 mm) – only required with spare power supplies			
CBL-PWR-EU	AC Power Cable - Europe (250 V/10 A, 1830 mm) – only required with spare power supplies			
CBL-PWR-UK	AC Power Cable - UK (250 V/10 A, 1830 mm) – only required with spare power supplies			
CBL-PWR-JP	AC Power Cable - Japan – only required with spare power supplies			
ORSA-1U	Open Rack Switch Adapter, for mounting standard 19 inch form factor 1U switches into 21 inch Open Rack.			

Ordering Information

Optional Accessories	Product Description
ET4201-RJ45	1000BASE-T Copper SFP transceiver
ET4202-SX	1000BASE-SX Multi mode SFP transceiver, up to 500 m (850 nm)
ET4202-LX	1000BASE-LX Single mode SFP transceiver, up to 10 km (1310 nm)
ET5402-SR	10 Gigabit SFP+, 850 nm Multimode, 802.3ae 10GBASE-SR Compliance, 300 m
ET5402-LR	10 Gigabit SFP+, 1310 nm Singlemode, 802.3ae 10GBASE-LR compliance, 10 km
ET5402-DAC-1M	10 Gigabit SFP+ DAC 1 m cable
ET5402-DAC-3M	10 Gigabit SFP+ DAC 3 m cable
ET5402-DAC-5M	10 Gigabit SFP+ DAC 5 m cable
ET5402-AOC-3M	10 Gigabit SFP+ AOC 3 m cable
ET5402-AOC-5M	10 Gigabit SFP+ AOC 5 m cable
ET5402-AOC-7M	10 Gigabit SFP+ AOC 7 m cable
ET5402-AOC-10M	10 Gigabit SFP+ AOC 10 m cable
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
ET6402-40DAC-5M	40G to 40G DAC cable, QSFP+ DAC cable, 5 m
ET6402-10DAC-1M	40G to 4 10G DAC cable, QSFP+ DAC- 4*SFP+DAC Cable, 1 m
ET6402-10DAC-3M	40G to 4 10G DAC cable, QSFP+ DAC- 4*SFP+DAC Cable, 3 m
ET6402-10DAC-5M	40G to 4 10G DAC cable, QSFP+ DAC- 4*SFP+DAC Cable, 5 m
ET6402-10AOC-5M	40G to 4 10G AOC cable, QSFP+ AOC- 4*SFP+AOC Cable, 5 m
ET6402-10AOC-7M	40G to 4 10G AOC cable, QSFP+ AOC- 4*SFP+AOC Cable, 7 m
ET6402-10AOC-10M	40G to 4 10G AOC cable, QSFP+ AOC- 4*SFP+AOC Cable, 10 m
ET6402-10AOC-15M	40G to 4 10G AOC cable, QSFP+ AOC- 4*SFP+AOC Cable, 15 m
ET6402-40AOC-3M	40G to 40G AOC cable, QSFP+ AOC cable, 3 m
ET6402-40AOC-5M	40G to 40G AOC cable, QSFP+ AOC cable, 5 m
ET6402-40AOC-7M	40G to 40G AOC cable, QSFP+ AOC cable, 7 m
ET6402-40AOC-10M	40G to 40G AOC cable, QSFP+ AOC cable, 10 m
ET6402-40AOC-15M	40G to 40G AOC cable, QSFP+ AOC cable, 15 m
ET6402-40AOC-30M	40G to 40G AOC cable, QSFP+ AOC cable, 30 m
ET6401-LR4	40G QSFP+ long range transceiver
ET6401-SR4	40G QSFP+ short range transceiver

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