

AS5710-54X, AS5712-54X

10GbE Data Center Switch

Bare-Metal Hardware

First Switch Design Accepted by Open Compute Project



Product Overview

The Edgecore AS5710-54X/AS5712-54X switch meets the high-performance, availability, and network-scaling requirements of enterprise and cloud data centers. The AS5710-54X/AS5712-54X provides full line-rate switching at Layer 2 or Layer 3 across 48 x 10GbE ports and 6 x 40GbE uplinks. The switch can be deployed either as a Top-of-Rack switch, or as part of a 10GbE or 40GbE distributed spine, forming a non-blocking folded CLOS data center fabric. The switch is rack mountable in either a standard 19 inch rack, or with the Open Rack Switch Adapter in the 21 inch Open Rack.

The AS5710-54X/AS5712-54X hardware provides the high availability features required for data center operation, including; redundant, hot-swappable AC or -48 VDC PSUs or 12 VDC power input; fan with 4+1 redundant fan modules; and port-to-power or power-to-port airflow options. The AS5710-54X/AS5712-54X is an ideal Top-of-Rack switch for virtualized data centers, with its support of VXLAN and NVGRE tunneling functions in hardware.

Key Features and Benefits

- Cost-effective, bare-metal switch infrastructure for data center fabric.
- 48 x SFP+ switch ports, supporting 10GbE (DAC, 10GBASE-SR/LR) or 1GbE (1000BASE-T/SX/LX).
- 6 x 40 QSFP switch ports, each supporting 40GbE (DAC, 40GBASE-SR4/LR4) or 4 x 10GbE (DAC or fiber breakout cable).
- Port Grouping to group 4 x 10G ports into one 40G port at the physical layer for maximum bandwidth utilization, and for 300 m optical reach over MMF (Subject to NOS options).
- Full line-rate Layer 2 or Layer 3 forwarding of 720 Gbps.
- VXLAN and NVGRE tunneling support in hardware for network virtualization.
- Rack mountable in standard 19" racks. Mountable in 21" Open Rack with the Open Rack Switch Adapter.
- Supports hot/cold aisle with port-to-power and power-to-port airflow SKUs.
- All ports on front; PSUs, fan modules on rear.
- Hot-swappable, load sharing, redundant AC or -48 VDC PSUs. 12 VDC power input option.
- Hot swappable 4+1 redundant fan modules.
- Management: Ethernet and console RJ-45 ports; USB storage port.
- Hardware switch pre-loaded with Open Network Install Environment (ONIE) for automated loading of compatible open source and commercial NOS offerings.
AS5710 SKU and AS5712 SKU compatible with Open Network Linux (ONL), the open-source, OCP reference NOS.
- AS5710 SKU and AS5712 SKU compatible with Big Monitoring Fabric™ and Big Cloud Fabric™ SDN applications from Big Switch.
- AS5712 SKU compatible with Cumulus® Linux® r2.5.1 and later version from Cumulus Networks®.
- AS5712 SKU compatible with OpenSwitch the open-source NOS.
- AS5712 SKU compatible with PicOS™ r2.6 and later version from Pica8 Inc.
- AS5712 SKU compatible with SnapRoute FlexSwitch software.
- AS5712 SKU Compatible with Pluribus Open Netvisor Linux v2.5 or later.

Features

Ports

Switch Ports:

- 48 x SFP+ each supporting 10GbE or 1GbE
- 6 x QSFP each supporting 40GbE or 4 x 10GbE

Management Ports on Front Panel:

- 1 x RJ-45 serial console
- 1 x RJ-45 100/1000BASE-T management
- 1 x USB Type A storage port

Key Components

Switch Silicon: Broadcom BCM56854 Trident II 720Gbps

CPU Modules:

- AS5710-54X: Freescale P2041 quad-core 1.5GHz CPU
 - 2 GB DDR3 SDRAM with ECC
 - 128 MB NOR Flash
 - 8 GB NAND Flash
 - 8GB SD Card
- AS5712-54X: Intel Atom C2538 quad-core 2.4GHz x86 processor
 - 8 GB SO-DIMM DDR3 RAM with ECC
 - 16 MB SPI Flash
 - 8 GB NAND Flash
 - Reserve mSATA connector

Performance

Wire Speed Forwarding: L2 and L3

Switching Capacity: 720 Gbps

Forwarding Rate: 1 Bpps

Jumbo frames support up to 9216 Bytes

Packet Buffer Size: 12 MB integrated packet buffer

Latency (RFC2544): 720 ns (L2/L3, cut-through mode, full line rate)

Subject to NOS:

MAC Address: 32 K min./288 K max.

VLAN IDs: 4 K

IPv4: 16 K min./112 K max. host entries; 16 K LPM entries with TCAM-only mode

IPv6: 8 K min./56 K max. host entries; IPv6/64=8K TCAM-only mode

Supported Optics and Cables

SFP+ Ports:

- 10GBASE-CR DAC: up to 5 m passive; up to 10 m active
- 10GBASE-SRL/SR: up to 100/300 m over OM3 MMF
- 10GBASE-LR: Up to 10km over SMF 10GBASE-
- 1000BASE-SX, 1000BASE-LX, 100/1000BASE-T

QSFP Ports:

- 40GBASE-CR4 DAC; 0.5 m to 7 m; Passive and Active
- 40GBASE-CR4 DAC to 4 x SFP+ 10GBASE-CR DAC; up to 5m passive; up to 10m active
- 40GBASE-SR4: Up to 100 m over OM3 MMF, 150 m over OM4 MMF
- 40GBASE-SR4 to 6 x 10GBASE-SR: 100 m over OM3, 150 m OM4
- 40GBASE-LR4: Up to 10km over SMF

Physical and Environmental

Dimensions (WxDxH): 44.3 x 47.3 x 4.34 cm (17.4 x 18.6 x 1.71 in)

Weight: 8.5 kg (18.74 lb), with two installed PSU modules

Fans: hot-swappable 4+1 redundant fans

Operating Temperature: 0°C to 40°C (32°F to 104°F)

Storage Temperature: -40°C to 70°C (-40°F to 158°F)

Operating Humidity: 5% to 95% non-condensing

LEDs

10G SFP+ Port LEDs: Link Speed, Link Status, Activity

40G QSFP Port LEDs: Link Status, Activity for 40G status

40G QSFP Breakout LEDs: set of 24 LEDs, 4 per QSFP port, show Link, Status, Activity 10G links with 4x10G breakout

Ethernet Management Port LED: Link Status, Activity

Console Port LED: Link Status

System LEDs: PSU1, PSU2, Diagnostic, Fans, Locator

Software

Switch is loaded with Open Network Install Environment (ONIE) software installer

Compatible with the following NOS options:

AS5712-54X:

Cumulus® Linux® r2.5.1 and later version from Cumulus Networks®

Open Network Linux, the open-source, OCP reference NOS

OpenSwitch open-source NOS

PicOS™ r2.6 and later version from Pica8 Inc.

Big Monitoring Fabric™ and Big Cloud Fabric™ SDN applications from Big Switch.

Pluribus Open Netvisor Linux v2.5 or later

FlexSwitch software from SnapRoute

AS5710-54X:

Open Network Linux, the open-source, OCP reference NOS

Big Monitoring Fabric™ and Big Cloud Fabric™ SDN applications from Big Switch.

Power

PSUs: 2 redundant, load-sharing, hot-swappable AC or -48 VDC

Input Voltage: 90 to 264 VAC at 50-60 Hz. -48 to -72 VDC.

Input Current: 6 A@100/120 VAC, 3 A@200/240 VAC, 10 A@-72 VDC

PSU Efficiency: Up to 93% for AC PSUs

Power input option: 12 VDC

Max Power: 282 W, without pluggable optics

Regulatory

EMI

CE Mark

EN55022 Class A

EN55024

FCC Part 15 Class A

EN61000-3-2

EN61000-3-3

VCCI

Safety

CB

UL/CUL

Environmental:

Temperature: IEC 68-2-14

RoHS-6 Compliant

Vibration: IEC 68-2-36, IEC 68-2-6

Shock: IEC 68-2-29

Country of Origin: Taiwan (TAA Compliant)

Warranty

Please check www.edge-core.com for the warranty terms in your country.

Ordering Information

Base Model: AS5710-54X 48-Port 10G SFP+ with 6x40G QSFP uplinks; ONIE software installer

Model Number	CPU Module	PSU	Airflow	Region (power cord)
5710-54X-O-AC-F-US	Freescale P2041 processor	dual AC PSUs	port-to-power airflow	N. America
5710-54X-O-AC-B-US	Freescale P2041 processor	dual AC PSUs	power-to-port airflow	N. America
5710-54X-O-AC-F-EU	Freescale P2041 processor	dual AC PSUs	port-to-power airflow	Europe
5710-54X-O-AC-B-EU	Freescale P2041 processor	dual AC PSUs	power-to-port airflow	Europe
5710-54X-O-AC-F-UK	Freescale P2041 processor	dual AC PSUs	port-to-power airflow	UK
5710-54X-O-AC-B-UK	Freescale P2041 processor	dual AC PSUs	power-to-port airflow	UK
5710-54X-O-AC-F-JP	Freescale P2041 processor	dual AC PSUs	port-to-power airflow	Japan
5710-54X-O-AC-B-JP	Freescale P2041 processor	dual AC PSUs	power-to-port airflow	Japan
5710-54X-O-48V-F	Freescale P2041 processor	dual 48VDC PSUs	port-to-power airflow	
5710-54X-O-48V-B	Freescale P2041 processor	dual 48VDC PSUs	power-to-port airflow	
5710-54X-O-12V-F	Freescale P2041 processor	one 12VDC power input	port-to-power airflow	
5710-54X-O-12V-B	Freescale P2041 processor	one 12VDC power input	power-to-port airflow	

Base Model: AS5712-54X 48-Port 10G SFP+ with 6x40G QSFP uplinks; ONIE software installer

Model Number	CPU Module	PSU	Airflow	Region (power cord)
5712-54X-O-AC-F-US	Intel Atom C2538 processor	dual AC PSUs	port-to-power airflow	N. America
5712-54X-O-AC-B-US	Intel Atom C2538 processor	dual AC PSUs	power-to-port airflow	N. America
5712-54X-O-AC-F-EU	Intel Atom C2538 processor	dual AC PSUs	port-to-power airflow	Europe
5712-54X-O-AC-B-EU	Intel Atom C2538 processor	dual AC PSUs	power-to-port airflow	Europe
5712-54X-O-AC-F-UK	Intel Atom C2538 processor	dual AC PSUs	port-to-power airflow	UK
5712-54X-O-AC-B-UK	Intel Atom C2538 processor	dual AC PSUs	power-to-port airflow	UK
5712-54X-O-AC-F-JP	Intel Atom C2538 processor	dual AC PSUs	port-to-power airflow	Japan
5712-54X-O-AC-B-JP	Intel Atom C2538 processor	dual AC PSUs	power-to-port airflow	Japan
5712-54X-O-48V-F	Intel Atom C2538 processor	dual 48VDC PSUs	port-to-power airflow	
5712-54X-O-48V-B	Intel Atom C2538 processor	dual 48VDC PSUs	power-to-port airflow	
5712-54X-O-12V-F	Intel Atom C2538 processor	one 12VDC power input	port-to-power airflow	
5712-54X-O-12V-B	Intel Atom C2538 processor	one 12VDC power input	power-to-port airflow	

Ordering Information

Model Number	PSU	Airflow	Region (power cord)
PSU-AC-400-F	400W AC Power Supply FRU	port-to-power airflow	no power cord
PSU-AC-400-B	400W AC Power Supply FRU	power-to-port airflow	no power cord
PSU-48V-400-F	400W -48V DC Power Supply FRU	port-to-power airflow	no power cord
PSU-48V-400-B	400W -48V DC Power Supply FRU	power-to-port airflow	no power cord
PSU-12V-400-1	12V DC power input unit FRU		
FAN-1U-1x1D-F	Fan Tray FRU	port-to-power airflow	
FAN-1U-1x1D-B	Fan Tray FRU	power-to-port airflow	
Model Number	Description		
CBL-PWR-US	AC Power Cable - US (125V/13A, 1830mm) – only required with spare power supplies		
CBL-PWR-EU	AC Power Cable - Europe (250V/10A, 1830mm) – only required with spare power supplies		
CBL-PWR-UK	AC Power Cable - UK (250V/10A, 1830mm) – only required with spare power supplies		
CBL-PWR-JP	AC Power Cable - Japan – only required with spare power supplies		
57XX-54X-SVC-RTF	AS5710-54X Annual Hardware Service, post warranty, Return-to-Factory		
ORSA-1U	Open Rack Switch Adapter, for mounting standard 19 inch form factor 1U switches into 21 inch Open Rack		
RKIT-85-6712	Rack mount kit (for AS5710-54X / AS5712-54X / AS6712-32X)		

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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