AS4600-54T-C
1GbE Data Center Switch
Powered By Cumulus® Linux®

Product Overview
The AS4600-54T-C is a high-performance Gigabit Ethernet switch, with 48 RJ-45 GbE ports, 4 x 10GbE SFP+ ports, and two module slots each with 40GbE bandwidth for additional uplinks. The switch provides the high-availability features required in a data center top-of-rack switch, including redundant hot-swappable AC or -48VDC PSUs, or 12VDC power input; hot-swappable redundant fans, and port-to-power or power-to-port airflow options. The two expansion module slots accept 1 x 40G QSFP modules to provide two 40G ports or eight 10G ports through breakout cables. This additional bandwidth makes the switch ideal for applications mixing 1GbE and 10 GbE nodes in a rack, or to support 40G uplinks to a spine network. The AS4600-54T-C comes with Cumulus Linux — the leading network OS for data center switching systems.

Cumulus Linux
Cumulus Linux is a Linux operating system that runs on top of industry-standard networking hardware. It is a software-only solution that accelerates robust networking functions at wire rate on a variety of platforms and is the ultimate choice when it comes to flexibility and innovation, enabling the best-of-breed hardware ecosystem and best-of-breed application ecosystem.

Cumulus Linux is Linux. It is not just based on Linux, it is Linux and offers the entirety of the Linux experience on networking hardware. Existing open source and commercial Linux applications run natively on industry-standard switches. New applications can be developed and integrated rapidly, enabling innovation cycles on par with software and application cycles.

Modern Data Center Networking with Cumulus Linux
Cumulus Linux is first and foremost a networking-focused Linux distribution. It enables modern data center architectures while providing a transition path for traditional data center architectures.

■ High-capacity IP fabrics enable scale, simplicity and rapid evolution
■ Automation: zero touch install and zero touch provisioning simplify operations
■ Modern data center orchestration, monitoring and troubleshooting provide operational efficiencies
■ Prescriptive Topology Manager simplifies operations from physical/logical topology consistency to simplified configuration based on a user-specified network graph
■ Overlay networks enable flexibility and rapid provisioning of multi-tenant network

Broad Application Ecosystem
Cumulus Linux is the foundation for a rich application ecosystem. Being Linux, it is a platform that can leverage existing Linux applications, and it is the foundation for development and rapid integration of third party applications. Modern data center network orchestration tools such as Ansible, CFEngine, Chef and Puppet work on Cumulus Linux. Modern data center monitoring tools such as collectd and Ganglia work on Cumulus Linux. Leverage scores of applications across compute and network from the more than 40,000 Debian applications available. Customize the platform and build applications for specific business needs to innovate faster!

Functionality	Description
Operating System Install & Upgrade	Server-style upgrade/patching across minor releases, server-style process restart/ termination. Support for zero touch OS installation using ONIE loaded on industry standard switches.
Extensibility	Linux extensibility — Any language supported in Linux today, including scripting with Bash, Python, Perl, Ruby
Hardware Management	The switch hardware abstraction layer accelerates Linux kernel networking constructs in hardware, including the routing table, ARP table, bridge FDB, ip/ebtables, bonds, VLANs, VXLAN bridges. Hardware management also includes jumbo frames support and environmental management
Layer 3 Features	Enhanced Quagga IPv4/v6 routing suite including OSPFv2, OSPFv3, BGPv4/v6, Equal-Cost Multi-Path (ECMP). Bidirectional Forwarding Detection (BFD).
Layer 2 Features	Bridge management with MSTPd including STP (IEEE 802.1d), RSTP (IEEE 802.1w), PVRST, PVST, bridge assurance, BPDU guard, BPDU filter. VLAN trunks (IEEE 802.1q), LACP (IEEE 802.3ad), unicast/broadcast storm control, LLDP, CDP, IPv6 neighbor discovery, IPv6 route advertisement. Host HA (through Host-MLAG). IGMPv2/v3 snooping, MLDv1/v2 snooping. Virtual Router Redundancy (VRR).
Network Virtualization	VXLAN support*, L2 gateway services integration with VMware NSX *, Lightweight Network Virtualization (LNV)*.
Management	Native Linux management tools such as OpenSSH, SCP, FTPS. Automated Install/ Upgrade: zero touch install and zero touch provisioning. DHCP, v4/v6 DHCP relays. Authentication with LDAP, authorization with sudo NTP. Advanced management/ orchestration through third party add-on packages.
Monitoring & Troubleshooting	Traditional monitoring with SNMPv2/v3 and network-specific MIB, analytics with SPAN,- ERSPAN, ACL-based counters, DOM optics data, thermal sensors, real time queue- depth and buffer utilization reporting. Troubleshooting with dnsutils, syslog, reachability tools, hardware inventory, log fles, server-style filesystem, and merchant silicon specific commands.A dvanced troubleshooting and ease of use with Prescriptive Topology Manager.
Security	Access control lists (ACLs) L2-L4 classification through ip/ebtables, CPU protection through hardware enforced ACL-based rate limiting.

*Check the appropriate hardware guide for platform-specific support.

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Hardware Specifications

■ Cost-effective, bare-metal infrastructure for data center racks.

■ 1GbE connection to server and storage nodes in rack, with 10GbE uplinks to spine network.

■ 48 x 10/100/1000BASE-T RJ-45 ports.

■ 4 x SFP+ uplink ports, supporting 10GbE (DAC, 10GBASE-SR/LR/ER/LRM) or 1GbE (1000BASE-T/SX/LX).

■ 1 x 40G QSFP port on the optional module supports 40GbE (DAC, 40GBASE-SR4/LR4) or 4 x 10GbE (DAC or fiber breakout cable).

■ Full line-rate L2 or L3 forwarding of 336Gbps.

■ Support hot/cold aisle with port-to-power and power-to-port airflow SKUs.

■ Energy efficiency: 122W typical power consumption.

■ Hot-swappable, load-sharing, redundant AC PSUs or -48VDC PSUs; or 12VDC power input.

■ Hot-swappable, redundant fans.

Ports

Switch Ports:
    48 x RJ-45 100/1000BASE-T ports
    4 x SFP+ ports supporting 10G or 1G
Management Ports on front (port) side:
    1 x RJ-45 serial console
    1 x RJ-45 100/1000BASE-T management
    1 x USB Type A storage port
    2 optional module slots on rear (power) side, each supporting
    1 x QSFP for 1 x 40 GbE or 4 x 10 GbE through breakout cables

Key Components

Switch Silicon: Broadcom BCM56540 Apollo2
CPU: Freescale P2020 dual-core 1.0GHz
Memory: 2GB DDR3 SDRAM ECC
Flash: 8MB NOR Flash, 1GB NAND Flash

Performance

Wire Speed Forwarding: L2 and L3
Switching Capacity: 336Gbps
MAC Addresses: up to 176K
VLAN IDs: 4K
Jumbo Frames (9216Bytes)
L3 Hosts: up to 176K
L3 Routes IPv4 12K, IPv6 6K
Packet Buffer Size: 4MB shared buffer pool

LEDs

GE RJ-45 SFP+ Port LEDs: Link Speed, Link Status, Activity
10G SFP+ Port LEDs: Link Speed, Link Status, Activity
Ethernet Management Port LED: Link Status, Activity
Console Port LED: Link Status
System LEDs: PSU1, PSU2, Diagnostic, Fans, Locator

Physical and Environmental

Dimensions (WxDxH): 440 x 410 x 43mm (17.3 x 16.1 x 1.7inches) 1 RU
Weight: 8.5kg (18.73lbs)
Fans: 2 hot swappable, redundant fans
Operating Temperature: 0°C to 40°C
Storage Temperature: -40°C to 70°C
Operating Humidity: 5% to 95% non-condensing

Software

Preloaded with Cumulus Linux. License cost included in the price for the specific term described in the SKU.

Supported Optics and Cables

GE RJ-45 Ports: Cat 5/5e/6 up to 100m
SFP+ Ports:
    10GBASE-CR DAC; 0.5m to 7m
    10GBASE-SRL/SR; up to 100/300 m over OM3 MMF
    10GBASE-LR; up to 10km over SMF
    1000BASE-SX, 1000BASE-LX, 100/1000BASE-T
QSFP Port on Optional Module:
    40GBASE-CR4 DAC; 0.5m to 7m
    40GBASE-CR4 DAC to 4 x SFP+ 10GBASE-CR DAC; 0.5m to 7m
    40GBASE-SR4; up to 100 m over OM3 MMF, 150m over OM4 MMF
    40GBASE-SR4 to 4x10GBASE-SR; 100m over OM3, 150m OM4
    40GBASE-LR4; up to 10km over SMF

Power

PSUs: 2 redundant, load-sharing, hot-swappable AC or -48VDC
Input Voltage: 90 to 264VAC at 50-60Hz. -48 to -72VDC.
Input Current: Max 6A @100/120VAC, 3A @200/240VAC, 10A @-72VDC, 12VDC power input option
12VDC power input option
Typical Power: 122W, line-rate, 48 x 1GbE Cat 6, 4 x 10GBASE-SR

Regulatory

EMI
    CE Mark (EN55022 Class A)
    FCC Part 15 Class A
    VCCI
Safety
    CB, EN 60950
    UL/CUL
Environmental:
    Temperature: IEC 68-2-14
    Shock: IEC 68-2-29
    Vibration: IEC 68-2-36, IEC 68-2-6
    Drop: ISTA 2A
RoHS-6 Compliant

Warranty

Please check www.edge-core.com for the warranty terms in your country. The warranty provides return-to-factory hardware replacement for a three year period in North America.

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Ordering Information

4600-54T-C-AC-F	AS4600-54T 48-port GE + 4 x10GE uplinks, pre-loaded with Cumulus Linux, dual AC PSUs, port-to-power airflow, 1 year OS license with standard support included
4600-54T-C-AC-B	AS4600-54T 48-port GE + 4 x10GE uplinks, pre-loaded with Cumulus Linux, dual AC PSUs, power-to-port airflow, 1 year OS license with standard support included
4600-54T-SVC-C	AS4600-54T Additional 2 year Cumulus Linux Software License and Maintenance (*must order together with above model)

*Note: Customers can order yearly subscription licenses for Cumulus Linux to extend beyond 3 years.

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.

Edge-Core Networks is a subsidiary of Accton Technology Corporation, the leading network ODM company. The Edge-Core data center switches are developed and manufactured by Accton.

To purchase Edge-Core solutions, please contact your Edge-Core Networks representatives at +886 3 563 8888 (HQ) or +1 (877) 828-CORE (877-828-2673) or authorized resellers.

About Cumulus Networks®

Cumulus Networks is bringing the Linux revolution to networking. Founded by veteran networking engineers from Cisco and VMware, Cumulus Networks makes the first Linux operating system for networking hardware and fills a critical gap in realizing the promise of the software-defined data center. Just as Linux completely transformed the economics and innovation on the server side of the data center, Cumulus Linux is doing the same for the network. It is radically reducing the costs and complexities of operating modern data center networks for service providers and enterprises. Cumulus Networks has received venture funding from Andreessen Horowitz, Battery Ventures, Sequoia Capital, Peter Wagner and four of the original VMware founders. For more information visit www.cumulusnetworks.com or follow us on Twitter @cumulusnetworks.

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