N8560-64C Switch

HIGH PERFORMANCE 100GB SWITCH FOR DATA CENTERS

N8560-64C spine switch is ideal for medium data centers and cloud computing services, providing stable, reliable and secure Layer 2/Layer 3 switching services.

Overview

The N8560-64C spine switch is ideal for medium and large data centers and cloud computing services. Compact 2U switch with full line-rate 64 40G/100G ports, delivering low-latency, zero packet loss, non-blocking lossless Ethernet.

The switch incorporates multiple features that optimize data center network flexibility, efficiency, and reliability, including industry-leading chip, redundant hot-swappable power supplies and fans, GR, BFD, PFC, ECN, etc, meeting the growing demands of data center environment.

Benefits

- Broadcom BCM56970 Switch Chip
- Low-latency, Zero Packet Loss with PFC/ECN
- GR and BFD Enhance Reliability
- 1+1 Redundant Power Supply
- 2+1 Redundant Fan Modules
- CLI/ SNMPv1/v2c/v3/Telnet

Product Characteristics

Non-blocking Performance with Powerful Caching Capacity

The N8560-64C is a line-rate switch to power the next-generation data centers and cloud computing. It meets the requirements for a spine-and-leaf network architecture. It provides 64x 100G ports and all the ports can forward data at the line rate.

The switch employs an advanced cache scheduling mechanism to maximize the device's cache capability, ensuring truly non-blocking transmission in the increasingly demanding data center environment.

Data Center Virtualization

The switch N8560-64C adopts the industry-leading stacking technology to achieve unified network management, reduce network nodes and enhance network reliability. The failover time for link failure is within 50 to 200ms to guarantee uninterrupted operation for mission-critical applications. The cross-device link aggregation feature enables access to servers or switches to achieve active-active uplinks.

RDMA-based Lossless Ethernet

The switch implements low-delay forwarding of the lossless Ethernet based on the Remote Direct Memory Access (RDMA) and optimizes service forwarding performance. It greatly reduces the operation cost per bit of the entire network and enhances the competitive edge of service products.

Hardware-based Traffic Visualization

The switch N8560-64C is equipped with the switch chips allowing end-to-end traffic visualization in a multipath, multinode network. In this way, the forwarding path and delay of each session can be monitored in a centralized manner, thereby raising the fault locating efficiency by more than 10 times.

Carrier-Class Reliability Protection

The switch N8560-64C supports built-in redundant power modules and modularized fan components. All the power modules and fan modules are hot-pluggable to guarantee undisturbed switching operation. In addition, the switch supports fault detection and automatic alarms for the power and fan modules. The rotation speed of the fans automatically adjusts to the ambient temperature. The switch further provides device-level and link-level reliability protection with the over-current, over-voltage, and overheating protection measures.

The switch N8560-64C also supports features like Graceful Restart (GR) and Bidirectional Forwarding (BFD) mechanisms. All the features ensure the network convergence time is unaffected even when the network bears abundant services and heavy traffic, and therefore ensure normal operation.

IPv4/IPv6 Dual-Stack Multi-Layer Switching

The hardware of the switch N8560-64C supports line-rate IPv4/IPv6 dual-stack multi-layer switching, and distinguishes and processes IPv4 and IPv6 protocol packets. The switch also supports multiple tunneling technologies including manually configured tunnels, automatic tunnels, ISATAP tunnels and so on.

The switch provides flexible IPv6 inter-network communication solutions to be realized according to the requirement plan and status quo of the IPv6 networks.

The switch supports a wide range of IPv4 routing protocols including static routing, RIP, OSPF, IS-IS and BGP4, which can be selected flexibly according to the network environment. The switch also supports an abundant list of IPv6 routing protocols, such as static routing, RIPng, OSPFv3, and BGP4+, which can be selected flexibly either to upgrade the existing network to IPv6 network or to construct a new IPv6 network.

Flexible and Comprehensive Security Policies

The switch N8560-64C features multiple security features, which effectively defend against and control virus flooding and hacker attacks. These features include anti-DoS attack, validity check of ARP packets on ports, and multiple hardware-based ACL policies.

The switch supports hardware-based IPv6 ACLs, which can easily control IPv6 users' access to edge devices even when IPv6 users exist within an IPv4 network. It allows coexistence of IPv4 and IPv6 users on the network and can control access permissions of IPv6 users, such as restricting access to sensitive resources on the network.

The switch also supports Telnet access control based on source IP addresses. The measure prevents unauthorized users or hackers from attacking or controlling devices and thereby enhances security of the device NMS. The switch N8560-64C also implements Secure Shell (SSH) and SNMPv3 to encrypt management information in Telnet and SNMP processes, thereby ensuring security of management device information and preventing hackers from waging attacks or controlling devices.

The switch prevents unauthorized users from network access through multiple functions. These functions include multi-element binding, port security, time ACL, and bandwidth limit based on data traffic. The switch N8560-64C highly strengthens access security and is a perfect match for large-sized networks.

Advanced Management

The switch N8560-64C supports a family of management ports such as Console, MGMT and USB. The switch also supports SNMP v1/v2c/v3, a universal network management platform and BMC. The switch enables Command Line Interface (CLI), Telnet, and cluster management, which simplify device management and provide various encryption modes such as SSH2.0 and SSL to enhance network security.

The switch supports SPAN/RSPAN mirroring and multiple mirroring observation ports, offering users high visibility and transparency for easy maintenance. The switch also provides a wide range of network traffic reports to help users optimize network structure and adjust resources deployment accordingly.

Technical Specification

N8560-64C switch comes with the industry-standard hardware and FSOS. Here's a look at the details.

CHARACTERISTICS

	N8560-64C
Ports	
40G/100G QSFP28	64
RJ45 Management Port	1
Console Port	1
USB	1
Operating System	
OS	FSOS
Key Components	
Switch Chip	Broadcom BCM56970
CPU	Cavium CN7230 (Quad-core, 1.5 GHz)
SDRAM	4GB
Performance	
Layer Type	Layer 3
Switching Capacity	12.8 Tbps
Forwarding Rate	9.52 Bpps
MAC Address	72K
Packet Buffer	42MB
Flash Memory	8GB
Latency	<1μs
Number of VLANs	4K
Jumbo Frame	9KB
Stackability	Up to 2 Units
MTBF (Hours)	390K
Status Indicators	Status, ID, Link, ACT, QSFP28 Port, Fan Module, Power Supply Module

CHARACTERISTICS

	N8560-64C
Remote Management Protocol	SNMP V1/V2C/V3, CLI, Telnet
Power	
Input Voltage	90 to 264 V AC, 50-60Hz
Max. Power Consumption	600W
Physical and Environmental	
Dimensions (HxWxD)	3.46"x 17.4"x 17.7" (88x 442x 450mm)
Rack Space	2U
Fan Number	3 (2+1 Redundancy)
Hot-swappable Power Supplies	2 (1+1 Redundancy)
Airflow	Front-to-Back
Weight	36.6 lbs (16.6kg), with 2 installed PSUs and 3 Fans
Operating Temperature	32°F to 113°F (0°C to 45°C)
Storage Temperature	-40°F to 158°F (-40°C to 70°C)
Operating Humidity	10% to 90% (Non-considensing)
Storage Humidity	10% to 90% (Non-considensing)
Warranty	
Warranty	5 Years

FEATURES

Functionality	Description
Layer 2 Protocols	IIEEE802.3ae (10Gbase) IEEE802.3ak IEEE802.3an IEEE802.3x IEEE802.3ad (link aggregation) IEEE802.1p IEEE802.1x IEEE802.1Q IEEE802.1D (STP) IEEE802.1w (RSTP) IEEE802.1s (MSTP) IGMP Snooping Jumbo Frame (9Kbytes) IEEE802.1ad (QinQ and flexible QinQ) GVRP
Layer 3 Protocols (IPv4)	BGP4 OSPFv2 RIPv1 RIPv2 BGP4+ Policy-based Routing Route-policy ECMP WCMP VRRP IGMP v1/v2/v3 PIM-SSM/SM/DM MSDP
Basic IPv6 Protocols	ND ICMPv6 Path MTU Discovery DNSv6 DHCPv6 ICMPv6 ICMPv6 redirection ACLv6 TCP/UDP for IPv6 SNMP v6 Ping /Traceroute v6 IPv6 RADIUS

FEATURES

Functionality	Description
Basic IPv6 Protocols	Telnet/SSH v6 FTP/TFTP v6 NTP v6 IPv6 MIB support for SNMP VRRP for IPv6 IPv6 QoS
IPv6 Routing Protocols	Static routing Equal-cost routing Policy-based routing OSPFv3 RIPng BGP4+ MLDv1/v2 PIM-SMv6 Manual tunnel Auto tunnel IPv4 over IPv6 tunnel ISATAP tunnel
Data Center Features	PFC, ECN, RDMA OpenFlow 1.3
Visualization	Support gRPC communication protocol Support sFlow sampling
QoS	EXP priority mapping based on 802.1p, DSCP and ToS ACL traffic classification Priority marking/remarking Multiple queue scheduling mechanisms, such as SP, WRR, DRR, SP+WRR, and SP+DRR
Stacking	Stacking technology for virtualizing 2 devices into 1
Buffer Management	Buffer monitoring and management, traffic burst identification
Reliability	GR for RIP/OSPF/BGP BFD detection RLDP (Rapid Link Detection Protocol) 1+1 power redundancy 2+1 fan redundancy Hot-swappable fans and power modules

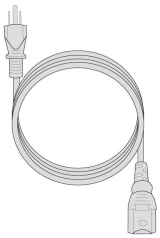
FEATURES

Functionality	Description
Security	Network Foundation Protection Policy (NFPP) CPU Protection (CPP) Detection of unauthorized data packets Data encryption IP source guard RADIUS / TACACS+ IPv4 / IPv6 ACL packet filtering based on standard or extended VLANs Plaintext authentication and MD5 cipher-text authentication of OSPF, RIPv2, and BGPv4 packets Telnet login through limited IP addresses and the password mechanism u-RPF Broadcast packet suppression DHCP snooping, Anti-gateway ARP spoofing ARP check
Manageability	SNMP v1/v2c/v3 Netconf Telnet Console MGMT RMON SSHv1/v2 FTP/TFTP for file upload and download management NTP clock Syslog SPAN/RSPAN/ERSPAN In-band Network Telemetry (INT) NETCONF
Other Protocols	DHCP Client DHCP Relay DHCP Server DNS Client ARP Proxy Syslog
Power Supply	AC input: Rated voltage range: 100V to 240V AC Max. voltage range: 90V to 264V AC Frequency: 50Hz to 60Hz Rated current: 11.7A

FEATURES

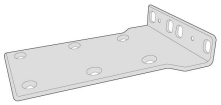
Functionality	Description
Power Supply	HVDC input: Input voltage range: 164V to 320V DC Input current range: 6.38A

Accessories



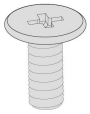
Power Cord x2

Grounding Cable x1



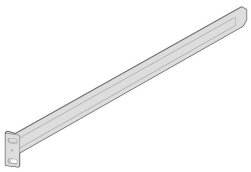
Mounting Bracket x2

M4 Screw x18

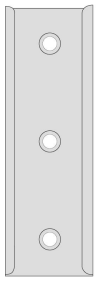


M6 Screw x8

M6 Nut x8



Slide Rail x2



Inner Rail x2

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