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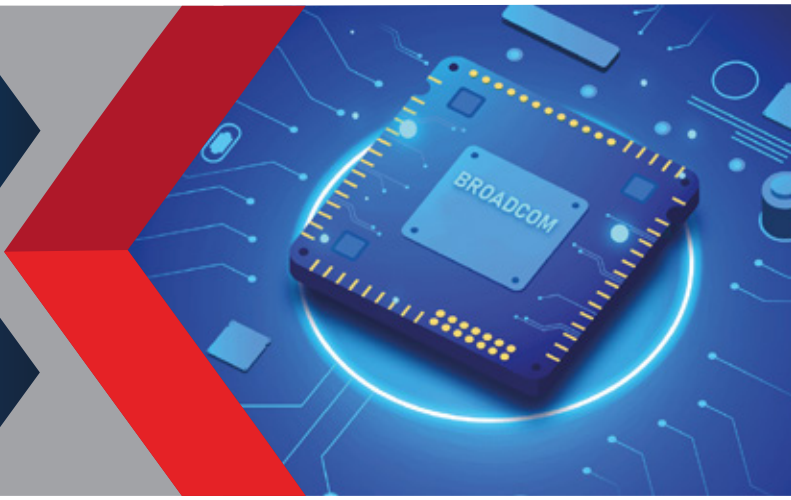
Core Aggregation Switch NX-6510S-20X4S2Q



OVERVIEW

NX-6510S-20X4S2Q is a newly released next-generation high-performance and high-security 10G Ethernet switch. The NX-6510S-20X4S2Q has an innovative hardware design that allows it to provide quicker hardware processing and a better user experience.

The NX-6510S-20X4S2Q allows you to deliver access services at a variety of speeds (10G/5G/2.5G/1G). They can connect to uplink devices through high-speed 10G/25G/40G/100G ports, allowing them to completely satisfy user demands for high-density access and high-performance convergence. For the convergence layer of big networks and the core layer of small and medium-sized networks, they provide stable performance, good end-to-end service quality, and a variety of security settings

FEATURES HIGHLIGHTS

- High-density 25G and 100G switches
- Multiple Rates-100M/1000M/2.5G/5G/10G; 10G/25G/40G/100G Uplinks
- Industry-standard CLI & Web Management
- Pv4/IPv6 Dual-stack Multi-layer Switching
- Support up to 2 Units Stacking
- IPv4/IPv6 Dual-Stack Multi-Layer Switching
- RMDA low latency forwarding
- Hot patches, Power And Fan Redundancy Support
- Non-Blocking Performance with Powerful Caching Capacity

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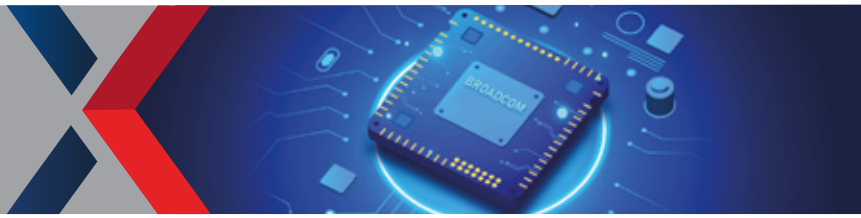

PRODUCT FEATURES

IPv4/IPv6 Dual-Stack Multi-Layer Switching

NX-6510S-20X4S2Q supports dual-stack IPv4/IPv6 multi-layer switching at line rates, and distinguishes and processes IPv4 and IPv6 protocol packets. The switch may be used to plan networks based on IPv6 network requirements, or it can be used to draw up adaptable IPv6 network communication solutions while keeping the network status intact. Static routing, Routing Information Protocol (RIP), Open Shortest Path First version 2 (OSPFv2), Intermediate System to Intermediate System version 4 (IS-ISv4), and Border Gateway Protocol version 4 are among the IPv4 routing protocols supported (BGP4). To create networks more flexibly, users can choose suitable routing protocols based on network circumstances. Static routing, Routing Information Protocol next generation (RIPng), OSPFv3, ISISv6, and BGP4+ are among the IPv6 routing protocols supported. To update an existing network to IPv6 or to establish a new IPv6 network, a routing protocol can be used freely.

Product Characteristics

NX-6510S-20X4S2Q supports multi-gigabit and PoE++, ethernet interface standards have swiftly progressed from 10BASE-T and 100BASE-T to 1000BASE-T (IEEE 802.3ab) and are now widely used in PCs, Access Points (APs), and other devices. The advancement of Wi-Fi 6 technology pushes AP uplink rates over 10 Gbps, putting a strain on gigabit network equipment. The NX-6510S-20X4S2Q adapts to Wi-Fi 6-compliant wireless APs by providing 100M, 1000M, 2.5G, 5G, and 10G Base-T adaptive Ethernet ports. Previously, only PoE and PoE+ were accessible in PoE remote power supply scenarios. When a device 's power surpasses 30 W, PoE is unavailable; power cables must be used to power the device via the mains, and in some circumstances, high current must be used. This has a significant impact on deployment costs, deployment time, future maintenance, and deployment security. The NX-6510S-20X4S2Q has a single port that can give up to 90W of PoE output. The IEEE802.3bt-compliant PoE++ technology enhances the user experience.

Stacking

The NX-6510S-20X4S2Q supports stacking devices that connects several physical devices via aggregate connections and virtualizes them into a single logical device. The device has the same IP address, telnet protocol, and command line interface (CLI) for management, as well as support for automated upgrade and configuration. Users just need to manage this device in order to benefit from the increased work productivity and user experience that it provides. Aggregate links can be 10G interfaces or special stacking cards, allowing consumers to get the best of the experience.

Strong Multi-Service Support Capability

The device upports many multicast protocols, including IGMP snooping, IGMP, Multicast Listener Discovery (MLD), Protocol Independent Multicast (PIM), PIM for IPv6, and Multicast Source Discovery Protocol (MSDP). For IPv4 networks, IPv6 networks, and IPv4 and IPv6 coexisting networks, the switch provides multicast service support. They may efficiently remove illegal multicast sources and improve network security by supporting IGMP source port and source IP inspection functions.

Simplified Management: Administrators may control many switches from a single location, eliminating the need to connect to each one for setup and management.

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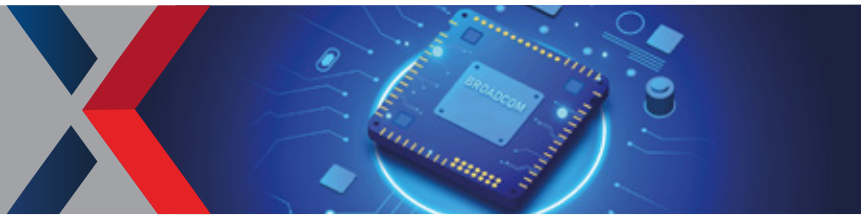

Simplified Network Topology: Through aggregate connections, a stacking switch can connect to peripheral devices on a network. As a result, there is no layer-2 loop and no need to establish the Multiple Spanning Tree Protocol (MSTP).

Fault Recovery Within Milliseconds: A stacking switch uses aggregate connections to connect to peripheral devices. If one of the stacking devices or member links fails, data and services can be shifted to another member link in 50–200 milliseconds.

High Scalability: In a virtualized network, user devices can be added or withdrawn in a "hot swap" fashion without disrupting the usual function of other devices.

QoS

To implement fine flow bandwidth management, forwarding priority, and other flow policies, support categorizing and managing various flows, including MAC flows, IP flows, and application flows. Furthermore, the switch may deliver services based on applications and service quality requirements for various applications. It supports 802.1p, IP ToS, layer-2 to layer-7 traffic filtering, SP, WRR, and other QoS regulations throughout the network, and implement QoS logic for different services.

Energy Effiency

To decrease energy consumption and noise, NX-6510S-20X4S2Q supports next-generation hardware architecture, improved energy-efficient circuit design, and components. The switch comes with variable-speed axial fans that intelligently change fan speed based on the current ambient temperature, lowering power consumption and noise while assuring device stability.

Easy Network Maintenance

For routine network diagnosis and maintenance, NX-6510S-20X4S2Q supports the Simple Network Management Protocol (SNMP), Remote Network Monitoring (RMON), log and configuration backup via USB flash drives, and Syslog. Administrators can also control and maintain devices via CLI, Web-based administration, telnet, and other diverse techniques.

Advanced Management

The switch has a number of management interfaces, including Console, MGMT, and USB. SNMP v1/v2c/v3, a global network management platform, and BMC are also supported by the switch. The switch supports Command Line Interface (CLI), Telnet, and cluster administration, simplifying device management and enhancing network security with encryption options including SSH2.0 and SSL.. SPAN/RSPAN mirroring and multiple mirroring observation ports are supported by the switch, providing users with excellent visibility and transparency for easy maintenance. The switch also offers a variety of network traffic statistics to assist customers in optimizing network structure and resource allocation.

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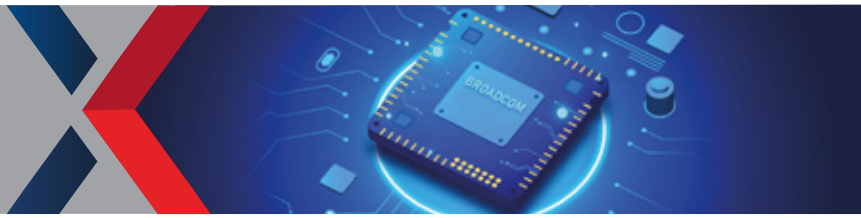


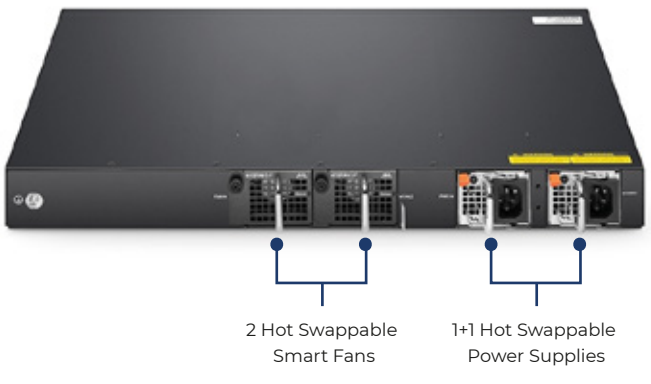
High Reliability

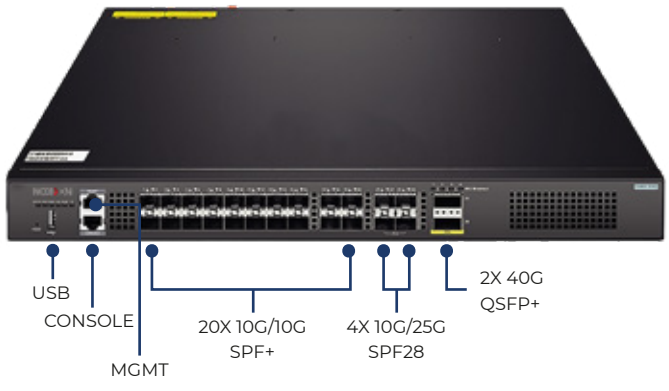
The NX-6510S-20X4S2Q includes built-in redundant power modules and modular fan assemblies that may be hot-swapped without interrupting device operation. In addition, it provides support for power and fan module failure detection and alarm features. The fan speed may be changed automatically to better adapt to the surrounding environment. The NX-6510S-20X4S2Q includes built-in redundant power modules and modular fan assemblies that may be hot-swapped without interrupting device operation. In addition, the NX-6510S-20X4S2Q also provides support for power and fan module failure detection and alarm features. The fan speed may be changed automatically to better adapt to the surrounding environment.

NX-6510S-20X4S2Q supports Ethernet Ring Protection Switching (ERPS), which provides sub-50ms protection and recovery switching for Ethernet traffic in a ring topology while also preventing loops at the Ethernet layer.

NX-6510S-20X4S2Q provides support for the Spanning Tree Protocols (STPs) (802.1d, 802.1w, and 802.1s) aids the switch in achieving quick convergence, improving fault tolerance, and ensuring stable network operation and link load balance. The switch makes proper use of network channels to maximize the use of redundant lines. Support for the Virtual Router Redundancy Protocol (VRRP), which aids the switch in ensuring network stability. The switch can swiftly identify link connections and unidirectional optical fiber links if it supports the Rapid Link Detection Protocol (RLDP).

The switch's port loop detection feature aids in the prevention of network failures caused by loops generated by illegal port connections to hubs. Rapid Ethernet Uplink Protection Protocol is supported. The Rapid Ethernet Uplink Protection Protocol can still offer basic link redundancy and millisecond-level fault recovery quicker than STP when STP is deactivated. Support Bidirectional Forwarding Detection (BFD), which allows upper-level protocols (such as routing protocols) to quickly identify the forwarding path connections between two routers. When the connection state changes, BFD dramatically reduces the time it takes for the upperlevel protocols to converge.





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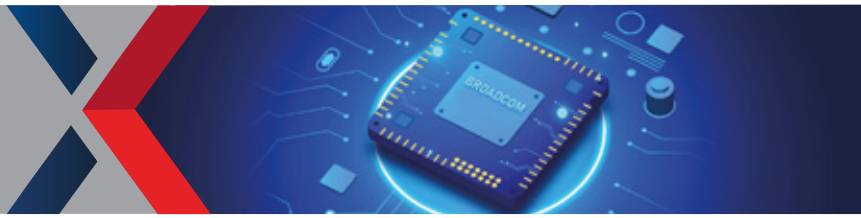

Sound Security Protection Policies

Using several intrinsic mechanisms such as anti-DoS attack, anti-IP scanning, validity check of ARP packets on ports, and several hardware ACL rules, the NX-6510S-20X4S2Q efficiently defends against and controls the spread of viruses and hacker assaults. It also supports hardware-based IPv6 ACLs, which allow you to simply manage IPv6 user access at the network border, even while other IPv6 users are present. NX-6510S-20X4S2Q supports hardware-based IPv6 ACLs, which can easily regulate IPv6 user access at the network edge even when IPv6 users are present on an IPv4 network. The switch allows IPv4 and IPv6 users to coexist, and it can govern IPv6 user access rights, such as restricting access to important network resources.

Hardware assistance Mechanism for CPU protection. It's a particular CPU-protection strategy in which data traffic transmitted to the CPU is categorized and processed according to queue priority, and bandwidth is reduced as needed. This approach entirely protects the CPU against unauthorized traffic occupancy, malicious assaults, and resource consumption, assuring CPU security and switch protection.

The NX-6510S-20X4S2Q's hardware allows you to flexibly bind a port or switch to a user's IP address and MAC address in order to restrict access to users connected to a port or switch. Support for DHCP snooping allows the NX-6510S-20X4S2Q to only receive DHCP answers from trustworthy ports, preventing spoofing by illegitimate DHCP servers.
The switch monitors ARP packets dynamically, checks users' IP addresses, and discards illegitimate packets whose addresses do not match bound entries, effectively eliminating ARP spoofing and source IP address spoofing. Support the source IP-based Telnet device access control, which may prevent unauthorized users and hackers from accessing and managing devices maliciously, therefore improving the network management security of the devices.
NX-6510S-20X4S2Q, supports Secure Shell (SSH) and Simple Network Management Protocol version 3 (SNMPv3), can encrypt management information in the telnet and SNMP processes, ensuring information security and preventing hackers from targeting and managing management equipment. Multiple procedures should be used to prevent unauthorized people from accessing networks. Multi-element binding, port security, time-based ACL, and data flow-based bandwidth limit are examples of such methods. These controls can assist company and college networks manage user access and prevent unauthorized users from communicating.

NX-6510S-20X4S2Q supports the Network Foundation Protection Policy, which is a security measure for switches. It separates attack sources in order to safeguard the switch's CPU and channel bandwidth resources, assuring regular packet forwarding and protocol status.

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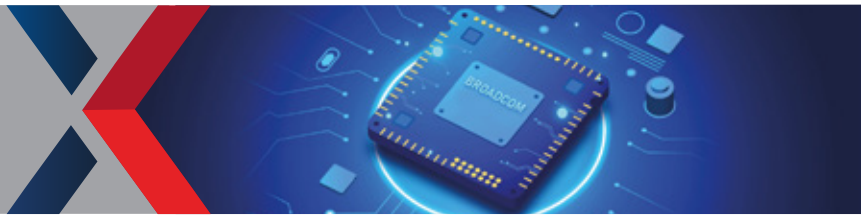

TECHNICAL SPECIFICATIONS

SPECIFICATIONS	NX-6510S-20X4S2Q
Port Buffer	4MB
ARP Table	Up to 16K
MAC Address	Up to 32K
Routing Table Size (IPv4/IPv6)	4K/4K
ACL Entries	Up to 2500
VLAN	4K 802.1Q VLAN, Port-based VLAN, Private VLAN, GVRP, Super VLAN
QinQ	Basic QinQ
Link Aggregation	LACP (802.3ad)
Spanning tree protocols	STP, RSTP, MSTP
Maximum Aggregation Port (AP)	128
VSU (Virtual Switch Unit)	Up to 2 stack members
Multiple Spanning Tree Instances	64
DHCP	DHCP Server, DHCP Client, DHCP Snooping, DHCP Relay, IPv6 DHCP Snooping, IPv6 DHCP Client, IPv6 DHCP Relay
IPv6 protocols	IPv6 addressing, ICMPv6, Path MTU Discovery
IP routing	Static routing, RIP, RIPing, OSPFv2, OSPFv3, IS-ISv4, IS-ISv6, BGP4, BGP4+, ECMP
Multicast	IGMP v1/v2/v3, IGMP proxy, IGMP v1/v2/v3 snooping, IGMP filtering, IGMP fast leave, PIM-DM, PIM-SM, PIM-SSM, MLD Snooping, MLD, MSDP
QoS	Port-based traffic recognition, Port-based speed limit, 802.1p/DSCP/TOS traffic classification, 8 priority queues per port, Queue scheduling algorithms: SP, WRR, DRR, SP+WRR, SP+DRR, RED/WRED
ACL	Various hardware-based ACLs: Standard IP ACL (Based on IP address), Extended IP ACL (Based on IP address and TCP/UDP port number) Extended MAC ACL (Based on source and destination MAC addresses and Ethernet type) Time-based ACL Expert ACL (Based on the flexible combination of VLAN ID, Ethernet type, MAC address, IP address, TCP/UDP port, protocol type and time) ACL80 IPv6 ACL
Security	Filter unauthorized MAC addresses, Broadcast storm suppression, Hierarchical management by administrators and password protection RADIUS and TACACS+, SSH, BPDU Guard CPP, NFPP
Management	SNMP, CLI (Telnet/Console), RMON (1,2,4,9), Syslog, NTP, SNMP over IPv6, IPv6 MIB support for SNMP, Telnet v6, FTP/TFTP v6, DNS v6, NTP for v6, Traceroute v6 Support sFlow to sample the packets of the switch traffic using the random sampling technology of data stream
Safety Standards	GB4943-2011, EN 62368-1:2014+A11:2017

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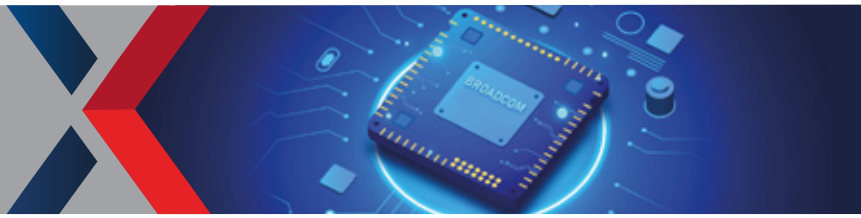

TECHNICAL SPECIFICATIONS

SPECIFICATIONS	NX-6510S-20X4S2Q
Reliability	VSU (virtualization technology for virtualizing multiple devices into 1); GR for RIP/OSPF/BGP; BFD; G.8032 (ERPS), REUP; RLDP; 1+1 power redundancy; Hotswappable power module and fan module
Power Supply	Supported power module: RG-PA150I-F AC input: Rated voltage range: 100 to 240VAC; 50/60Hz Maximum voltage range: 90 to 264VAC; 47/63Hz Rated input current: 3A, HVDC input: Rated voltage range: 240VDC Maximum voltage range: 192 to 288 VDC Rated current per input: 3A
Power Consumption	<85W
Power Surge Protection	4KV (MGMT Port) Power Supply Module (RG-PA150I-F): common mode 6KV/difference mode 6KV
Fan	Support 2 pluggable modular fans with front and rear air ducts Support fan speed adjustment and malfunction alert
Temperature alarm	Support temperature alarm function
Temperature	Operating temperature: 0°C to 50°C, Storage temperature: -40°C to 70°C
Humidity	Operating humidity: 10% to 90%RH, Storage humidity: 5% to 90%RH
Emission Standards	GB9254-2008 CLASSA, EN 55032:2015+AC:2016, EN 61000-3-2:2014, EN 61000-3-3:2013+A1:2019 EN 55035:2017, ETSI EN 300 386 V2.1.1 (2016-07)
Operating Altitude	0 to 5,000m
Dimensions (W x D x H) (mm)	440 * 330 * 43.6
Rack Height	1RU

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