Specification Sheet

Dell EMC PowerSwitch N2200-ON Series Switches

Cost-effective Open networking Multigigabit Ethernet switches for modernizing and scaling infrastructure

The N2200-ON switch series offers a power-efficient Multigigabit Ethernet network-access switching solution with integrated 25GbE uplinks. With high-performance capabilities and wire-speed performance, utilizing a non-blocking architecture to easily handle unexpected traffic loads, the switches offer simple management and scalability via an 160Gbps (full duplex) high availability stacking architecture that allows management of up to twelve switches from a single IP address. An integrated 80PLUS Platinum certified power supply provides energy efficiency to help decrease power and cooling costs.

Modernize campus network architectures

Modernize campus network architectures with a power-efficient and resilient 1/2.5/25GbE switching solution with 802.3bt Type-3 (60W) Power over Ethernet. PoE ports can deliver clean power to network devices such as wireless access points (APs), Voice-over-IP (VoIP) handsets, video conferencing systems, security cameras, LED luminaries and many more. For greater interoperability in multivendor networks, N2200 switches offer the latest open-standard protocols.

Leverage familiar tools and practices

All N-Series switches include Dell EMC Networking OS6, designed for easier deployment, greater interoperability and a lower learning curve for network administrators. One common command line interface (CLI) and graphic user interface (GUI) using a well-known command language gets skilled network administrators productive quickly. With USB auto-configuration, network administrators can rapidly deploy mirrored configurations to numerous devices by simply inserting a USB key. N2200-ON switches also support the Open Network Install Environment (ONIE), enabling installation of alternate network operating systems.

Deploy with confidence at any scale

N2200-ON series switches help create performance assurance with a data rate up to 600Gbps (full duplex) and a forwarding rate up to 833Mpps. Scale easily with built-in rear stacking ports. Switch stacks of up to 624 1/2.5/25GbE ports can be managed from a single screen using the highly-available stacking architecture for high-density aggregation with seamless redundant availability.

N-Series switches help provide certainty with a lifetime warranty that covers software upgrades, hardware repair or replacement, and optics and cables purchased with the switch. Details at Dell.com/LifetimeLimitedWarranty*

Hardware, performance and efficiency

- 1RU switches with up to 48 line-rate 1/2.5GbE RJ-45 ports and four integrated 25GbE SFP28 ports.
- Up to 48 ports of 30W PoE including 24 ports which can scale up to 60W PoE
- Up to 624 1/2.5/25GbE ports in a 12-unit stack for high-density, high-availability in IDFs, MDFs and wiring closets.
- Non-stop forwarding and fast failover in stack configurations.
- Dell Fresh Air compliance for operation in environments up to 113°F (45°C) helps reduce cooling costs in temperature constrained deployments.

Deploying, configuring and managing

- USB auto-configuration rapidly deploys the switch without complex TFTP configurations or sending technical staff to remote offices.
- Management via an intuitive and familiar CLI, embedded web server (GUI), SNMP-based management console application (including Dell OpenManage Network Manager), Telnet or serial connection.
- Private VLAN extensions and Private VLAN Edge support.
- AAA authorization, TACACS+ accounting and RADIUS support for comprehensive secure access support.
- Authentication tiering allows network administrators to tier port authentication methods such as 802.1x, MAC Authentication
- Bypass and Captive Portal in priority order so that a single port can provide flexible access and security.
- Achieve high availability and full bandwidth utilization with MLAG and support firmware upgrades without taking the network offline.
- Layer 3 Standard IPv4 and IPv6 functionality including static routing, RIP, and OSPF support.
- VXLAN-Lite support in hardware only (can be used if enabled by ON partner network operating system)

*Select Networking products carry a Lifetime Limited Warranty with Basic Hardware Service (repair or replacement) for life. Repair or replacement does not include troubleshooting, configuration, or other advanced service provided by Dell EMC ProSupport.

Product	Description
N2200 Series	• N2224X-ON IO/PS airflow with OS6: 24x RJ45 10M/100M/1G/2.5G auto-sensing ports, 4x SFP28 ports, 1x 550W PSU included • N2224X-ON PS/IO airflow with OS6: 24x RJ45 10M/100M/1G/2.5G auto-sensing ports, 4x SFP28 ports, 1x 550W PSU included • N2224PX-ON IO/PS airflow with OS6: 12x RJ45 10M/100M/1G/2.5G 802.3at (up to 30W) PoE auto-sensing ports, 12x RJ45 1G/2.5G 802.3bt Type-3 (up to 60W) PoE auto-sensing ports, 4x SFP28 ports, 1x 1050W PSU included • N2248X-ON IO/PS airflow with OS6: 48x RJ45 10M/100M/1G/2.5G auto-sensing ports, 4x SFP28 ports, 1 550W PSU included • N2248X-ON PS/IO airflow with OS6: 48x RJ45 10M/100M/1G/2.5G auto-sensing ports, 4x SFP28 ports, 1 550W PSU included • N2248PX-ON IO/PS airflow with OS6: 24x RJ45 10M/100M/1G/2.5G 802.3at (up to 30W) PoE auto-sensing ports, 24x RJ45 1G/2.5G 802.3bt Type-3 (up to 60W) PoE auto-sensing ports, 4x SFP28 ports, 1x 1600W PSU included
Power cords	• C13 to NEMA 5-15, 3M • C13 to C14, 2M
Power Shelves (optional)	• MPS-1S Shelf, External power shelf to hold 1 PSU (any of 1050W AC, 1600W AC, 2000W AC, 1300W DC), Extends PoE budget for N2224PX-ON, N2248PX-ON ** • MPS-3S Shelf, External power shelf to hold up to 3 PSUs (any combination of 1050W AC or 1600W AC or 2000W AC PSUs, or up to three 1300W DC PSUs), Extends PoE budget for N2224PX-ON, N2248PX-ON **
Power supplies (optional)	• 550W AC hot swappable with IO/PS airflow, adds redundancy to N2224X-ON, N2248X-ON • 550W AC hot swappable with PS/IO airflow, adds redundancy to N2224X-ON, N2248X-ON • 1050W AC hot swappable with IO/PS airflow, adds redundancy and/or extends PoE budget for N2224X-ON. Also used with MPS-1S shelf, MPS-3S Shelf • 1600W AC hot swappable with IO/PS airflow, adds redundancy and/or extends PoE budget for N2248PX-ON. Also used with MPS-1S shelf, MPS-3S Shelf • 2000W-AC hot swappable with IO/PS airflow, extends PoE budget, used with MPS1S Shelf, MPS-3S Shelf ** • 550W DC hot swappable with IO/PS airflow, adds redundancy to N2224X-ON, N2248X-ON ** • 1300W DC hot swappable with IO/PS airflow, adds redundancy and/or extends PoE budget for N2224PX-ON, N2248PX-ON **
Optics	• Transceiver, SFP, 1000BASE-T** • Transceiver, SFP, 1000BASE-SX** • Transceiver, SFP, 1000BASE-LX** • Transceiver, SFP, 1000BASE-ZX** • Transceiver, SFP+ 10GbE, USR (MMF upto 100m) • Transceiver, SFP+ 10GbE, SR (MMF upto 400m) • Transceiver, SFP+ 10GbE,LR (SMF 10 km) • Transceiver, SFP+ 10GbE,ER SMF 40 km) • Transceiver, SFP+ 10GbE,ZR (SMF 80 km) • Transceiver, SFP+ 10GbE,BASE-T** • Transceiver, SFP28 25GbE, LR** • Transceiver, SFP28 25GbE, SR-NOF • Transceiver, SFP28 25GbE, ESR • Transceiver, QSFP+ 40GbE, QSFP-40G-SR4, for stacking ports • Transceiver, QSFP+ 40GbE, QSFP-40G-LR4, for stacking ports
Cables	• 10GbE, SFP+ to SFP+, Passive DAC (0.5M, 1M, 2M, 3M, 5M, 7M) • 10GbE, SFP+ to SFP+, Active optical (2M, 3M, 5M, 7M, 10M,15M, 20M) • 25GbE, SFP28 to SFP28, Passive DAC (1M, 2M, 3M, 5M)** • 25GbE, SFP28 to SFP28, Active optical (7M, 10M,15M, 20M)** • 40GbE, QSFP+ to QSFP+, Passive DAC (0.5M, 1M, 2M, 3M, 5M, 7M), for stacking ports • 40GbE, QSFP+ to QSFP+, Active optical (3M, 10M), for stacking ports
Fans (spare)	• Fan module, IO to PSU Airflow • Fan module, PSU to IO Airflow (for N2224X-ON, N2248X-ON only)

**Planned in Roadmap and/or future Software release

Technical specifications

Hardware specifications

Physical

2 integrated rear 40GbE QSFP+ stacking ports
Out-of-band management port (10/100/1000BASE-T)
USB (Type A) port for configuration via USB flash drive
MicroUSB (Type B) console port (MicroUSB to USB connector cable included)
RJ45 console port with RS232 signaling (RJ-45 to female DB-9 connector cable included)
Auto-negotiation for speed and flow control
Auto MDI/MDIX, port mirroring
Flow-based port mirroring
Broadcast storm control
Redundant variable speed fans (field replaceable)
Air flow: I/O to power supply; Power supply to I/O options available with non-PoE models
Integrated power supply: 550W AC (N2224X-ON,N2248X-ON), 1050W AC (N2224PX-ON), 1600W AC (N2248PX-ON)
Dual firmware images on-board
Switching engine model: Store and forward

Chassis

Size (1RU, H x W x D): 1.71 in x 17.09 in x 15.75 in (power supply/fan tray handle adds additional 1.18 in)
Approximate weight (Switch with 1 PSU installed): 14.3lbs/6.5kg (N2224X-ON), 14.7lbs/6.7kg (N2224PX-ON), 15.1lbs/6.9kg (N2248X-ON), 15.8lbs/7.2kg (N2248PX-ON)
2-Post rack mounting kit

Environmental

Power supply efficiency: 80% or better in all operating modes
Max. thermal output (BTU/hr): 812 (N2224X-ON), 4495 (N2224PX-ON), 1112 (N2248X-ON), 8478 (N2248PX-ON)
Power consumption max (watts): 238W (N2224X-ON), 1318W (N2224PX-ON), 326W (N2248X-ON), 2486W (N2248PX-ON)
Operating temperature: 32° to 113°F (0° to 45°C) Operating humidity: 95%
Storage temperature: –40° to 149°F (–40° to 65°C)
Storage relative humidity: 85%

Performance

CPU memory: 4GB
SSD: 8GB
Packet buffer memory: 4MB
Switch fabric capacity (full duplex): 480Gbps (N2224X-ON and N2224PX-ON); 600Gbps (N2248X-ON and N2248PX-ON)
Forwarding rate: 667Mpps (N2224X-ON and N2224PX-ON); 833Mpps (N2248X-ON and N2248PX-ON)
Line-rate Layer 2 switching: All (non-blocking)
Line-rate Layer 3 routing: All (non-blocking)

Network Operating System specifications

Software specifications listed below are applicable for OS6. For detailed specifications of the ON partner NOS, please contact your Dell EMC or ON partner representative

Scaling performance

MAC addresses: 32K
Static routes: 256 (IPv4)/128 (IPv6) Dynamic routes: 256 (IPv4)
Link aggregation: 128 LAG groups, 144 dynamic ports per stack, 8 member ports per LAG
Priority queues per port: 8
RIP routing interfaces: 256
VLAN routing interfaces: 128
VLANs supported: 4,094
Protocol-based VLANs: Supported
ARP entries: 4.096
NDP entries: 512
Access control lists (ACL): Supported
MAC and IP-based ACLs: Supported
Time-controlled ACLs: Supported
Max number of ACLs: 100
Max ACL rules system-wide: 3,914
Max rules per ACL: 1,023
Max ACL rules per interface (IPv4): 1,023 (ingress), 1023 (egress)
Max ACL rules per interface (IPv6): 1023 (ingress), 509 (egress)
Max VLAN interfaces with ACLs applied: 24

IEEE compliance

802.1AB	LLDP
Dell	Voice VLAN
Dell	ISDP
802.1D	Bridging, Spanning Tree
802.1p	Ethernet Priority (User Provisioning and Mapping)
Dell	Adjustable WRR and Strict Queue Scheduling
802.1Q	VLAN Tagging, Double VLAN Tagging, GVRP
802.1S	Multiple Spanning Tree (MSTP)
802.1v	Protocol-based VLANs
802.1W	Rapid Spanning Tree (RSTP)
Dell	RSTP-Per VLAN
Dell	Spanning tree optional features: STP root guard, BPDU guard, BPDU filtering
802.1X	Network Access Control, Auto VLAN
802.2	Logical Link Control
802.3	10BASE-T
802.3ab	Gigabit Ethernet (1000BASE-T)
802.3ac	Frame Extensions for VLAN Tagging
802.3ad	Link Aggregation with LACP
802.3ae	10 Gigabit Ethernet (10GBASE-X)
802.3at	PoE+ (N2024P and N2048P)
802.3AX	LAG Load Balancing
Dell	Multi-Chassis LAG (MLAG)
Dell	Policy Based Forwarding
802.3u	Fast Ethernet (100BASE-TX) on Management Ports
802.3x	Flow Control
802.3z	Gigabit Ethernet (1000BASE-X)
ANSI	LLDP-MED (TIA-1057)
MTU	9,216 bytes

General Internet protocols

General Internet protocols are supported. For a detailed list, please contact your Dell EMC representative.

General IPv4 protocols

General IPv4 protocols are supported. For a detailed list, please contact your Dell EMC representative.

General IPv6 protocols

General IPv6 protocols are supported. For a detailed list, please contact your Dell EMC representative.

Layer 3 functionality

1058	RIPv1
1724	RIPv2 MIB Extension
2082	RIP-2 MD5 Auth
2453	RIPv2
1765	OSPF DB overflow
1850	OSPF MIB
2328	OSPFv2
2740	OSPFv3 (from OS6.6.2)
3137	OSPF Stub Router Advert
5187	OSPFv3 Graceful Routing Restart (from OS6.6.2)

Multicast

2365	Admin scoped IP Mcast
2932	IPv4 MIB
4541	IGMP v1/v2/v3 Snooping and Querier

IEEE 802.1ag draft 8.1 – Connectivity Fault Management

Quality of service

2474	DiffServ Field
2475	DiffServ Architecture
2597	Assured Fwd PHB
Dell	Port Based QoS(TCP/UDP) Services Mode
Dell	Flow Based QoS Services Mode (IPv4/IPv6)
2697	srTCM
4115	trTCM
Dell	L4 Trusted Mode
Dell	UDLD

Network Management and Security

1155	SMIv1
1157	SNMPv1
1212	Concise MIB Definitions
1213	MIB-II
1215	SNMP Traps
1286	Bridge MIB
1442	SMIv2
1451	Manager-to-Manager MIB
1492	TACACS+
1493	Managed Objects for Bridges MIB
1573	Evolution of Interfaces
1612	DNS Resolver MIB Extensions
1643	Ethernet-like MIB
1757	RMON MIB
1867	HTML/2.0 Forms with File Upload Extensions
1901	Community-based SNMPv2
1907	SNMPv2 MIB
1908	Coexistence Between SNMPv1/v2
2011	IP MIB
2012	TCP MIB
2013	UDP MIB
2068	HTTP/1.1
2096	IP Forwarding Table MIB
2233	Interfaces Group using SMIv2
2246	TLS v1
2271	SNMP Framework MIB
2295	Transport Content Negotiation
2296	Remote Variant Selection
2346	AES Ciphersuites for TLS
2576	Coexistence Between SNMPv1/v2/v3
2578	SMIv2
2579	Textual Conventions for SMIv2
2580	Conformance Statements for SMIv2
2613	RMON MIB
2618	RADIUS Authentication MIB

2620	RADIUS Accounting MIB
2665	Ethernet-like Interfaces MIB
2666	Identification of Ethernet Chipsets
2674	Extended Bridge MIB
2737	ENTITY MIB
2818	HTTP over TLS
2819	RMON MIB (groups 1, 2, 3, 9)
2856	Text Conv. For High Capacity Data Types
2863	Interfaces MIB
2865	RADIUS
2866	RADIUS Accounting
2868	RADIUS Attributes for Tunnel Prot.
2869	RADIUS Extensions
3410	Internet Standard Mgmt. Framework
3411	SNMP Management Framework
3412	Message Processing and Dispatching
3413	SNMP Applications
3414	User-based security model 3415 View-based control model
3416	SNMPv2
3417	Transport Mappings
3418	SNMP MIB
3577	RMON MIB
3580	802.1X with RADIUS
3737	Registry of RMOM MIB
4086	Randomness Requirements
4113	UDP MIB
4251	SSHv2 Protocol
4252	SSHv2 Authentication
4253	SSHv2 Transport
4254	SSHv2 Connection Protocol
4419	SSHv2 Transport Layer Protocol
4521	LDAP Extensions
4716	SECSH Public Key File Format
6101	SSL
6398	IP Router Alert Dell Enterprise MIB supporting routing features draft-ietf- hubmib-etherif- mib-v3-00.txt (Obsoletes RFC 2665)
Dell	LAG MIB Support for 802.3ad Functionality
Dell	sflow version 1.3 draft 5
Dell	802.1x Monitor Mode
Dell	Custom Login Banners
Dell	Dynamic ARP Inspection
Dell	IP Address Filtering
Dell	Tiered Authentication
Dell	RSPAN
Dell	Change of Authorization
Dell	OpenFlow 1.3
Dell	Python Scripting
Dell	Support Assist

Other certifications

N-Series products have the necessary features to support a PCI compliant network topology.

Regulatory, environment and other compliance

Safety and emissions

Australia/New Zealand: ACMA RCM Class A
Canada: ICES Class A; cUL
China: CCC Class A; NAL Europe: CE Class A Japan: VCCI Class A
USA: FCC Class A; NRTL UL; FDA 21 CFR 1040.10 and 1040.11
Eurasia Customs Union: EAC Germany: GS mark
Product meets EMC and safety standards in many countries inclusive of USA, Canada, EU, Japan, China.
For more country-specific regulatory information and approvals, please see your Dell EMC representative.

RoHS

Product meets RoHS compliance standards in many countries inclusive of USA, EU, China, and India. For more country-specific RoHS compliance information, please see your Dell EMC representative.
EU WEEE
EU Battery Directive REACH

Energy

Japan: JEL

IT Lifecycle Services for Networking

Experts, insights and ease
Our highly trained experts, with innovative tools and proven processes, help you transform your IT investments into strategic advantages.

Plan & Design
Let us analyze your multivendor environment and deliver a comprehensive report and action plan to build upon the existing network and improve performance.

Deploy & Integrate
Get new wired or wireless network technology installed and configured with ProDeploy.Reduce costs, save time, and get up and running fast.

Educate
Ensure your staff builds the right skills for long-term success. Get certified on Dell EMC Networking technology and learn how to increase performance and optimize infrastructure.

Manage & Support
Gain access to technical experts and quickly resolve multivendor networking challenges with ProSupport. Spend less time resolving network issues and more time innovating.

Optimize

Maximize performance for dynamic IT environments with Dell EMC Optimize. Benefit from in-depth predictive analysis, remote monitoring and a dedicated systems analyst for your network.

Retire

We can help you resell or retire excess hardware while meeting local regulatory guidelines and acting in an environmentally responsible way.

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