N2200 SPEC 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.*

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 Open Networking (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. Details at https://www.dell.com/en-us/work/shop/networkingwarranty/cp/networkingwarranty
<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
</table>
| 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  
|                      | N2244P-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 802.3at 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, 1x 550W PSU included  
|                      | N2248X-ON PS/IO airflow with OS6: 48x RJ45 10M/100M/1G/2.5G auto-sensing ports, 4x SFP28 ports, 1x 550W PSU included  
|                      | N2248PX-ON IO/PS airflow with OS6: 24x RJ45 1G/2.5G 802.3at Type-3 (up to 60W) PoE auto-sensing ports, 4x SFP28 ports, 1x 1600W PSU included  
|                      | N2248X-ON PS/IO airflow with OS6: 48x RJ45 10M/100M/1G/2.5G auto-sensing ports, 4x SFP28 ports, 1x 550W PSU included  
|                      | N2248X-ON PS/IO airflow with OS6: 48x RJ45 10M/100M/1G/2.5G auto-sensing ports, 4x SFP28 ports, 1x 550W PSU included  
|                      | N2248PX-ON IO/PS airflow with OS6: 24x RJ45 1G/2.5G 802.3at 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+ 10GbE, USR (MMF up to 100m)  
Transceiver, SFP+ 10GbE, SR (MMF up to 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 (3M,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 (10/10/100BASE-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
- 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
- Approximate weight (Switch with 1PSU installed): 14.3lbs/6.5kg (N2224X-ON), 14.7lbs/6.7kg (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), 1125 (N2224PX-ON), 2486W (N2248PX-ON)
- Power consumption max (watts): 238W (N2224X-ON), 158W (N2224PX-ON), 326W (N2248PX-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 N2248X-ON), 600Gbps (N2224PX-ON and N2248PX-ON)
- Forwarding rate: 667Mpps (N2224X-ON and N2248X-ON); 600Gbps (N2224PX-ON and N2248PX-ON)
- Switch fabric capacity (full duplex): 480Gbps
- 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 NCS, please contact your Dell Technologies 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), 1,023 (egress)
- Max ACL rules per interface (IPv6): 1,023 (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
- 802.1Q: VLAN Tagging, Double VLAN Tagging, GFPv2
- 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 (100BASE-T)
- 802.3ac: Frame Extensions for VLAN Tagging
- 802.3ad: Link Aggregation with LACP
- 802.3ae: 10 Gigabit Ethernet (10GBASE-X)
- 802.3ae: 10 Gigabit Ethernet (10GBASE-X)
- 802.3af: PoE+ (N2224P and N2048P)
- 802.3X: 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-Z)
- 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 Technologies representative.

**General IPv4 protocols**

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

**General IPv6 protocols**

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

**Layer 3 functionality**
- 10G8: RIPv1
- 1724: RIP v2 MIB Extension
- 2082: RIF-2 MDS Auth
- 3945: RIPv2
- 1785: 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 81 – Connectivity Fault Management

**Quality of service**
- 2474: DiffServ Field
- 2475: DiffServ Architecture
- 2597: Assured Fwd PHB
- Dell: Port Based GoS (TCP/UDP) Services Mode
- Dell: Flow Based GoS Services Mode (IPv4/IPv6)
- 2697: sTCM
- 4115: tr-TCM
- Dell: L4 Trusted Mode
- Dell: UDLD

**Network Management and Security**
- 1155: SMXv1
- 1157: SNMPv1
- 1212: Concise MIB Definitions
- 1213: MIB-II
- 1215: SNMP Traps
- 1286: Bridge MIB
- 1442: SMXv2
- 1451: Manager-to-Manager MIB
- 1492: TACACS+
- 1493: Managed Objects for Bridges MIB
- 1573: Evolution of Interfaces
- 1612: DNS Resolver MIB Extensions
- 1643: Ethernet-ike MIB
- 1757: RMON MIB
- 1867: HTML/2.0 Forms with File Upload Extensions
- 1901: Community-based SNMPv2
- 1907: SNMIPv2 MIB
- 1908: Coexistence Between SNMIPv1/v2
- 2011: IP MIB
- 2012: TCP MIB
- 2013: UDP MIB
- 2068: HTTP/1.1
- 2096: IP Forwarding Table MIB
- 2233: Interfaces Group using SMXv2
- 2246: TLS v1
- 2271: SNMP Framework MIB
- 2296: Transport Context Negotiation
- 2366: Remote Variant Selection
- 2576: Coexistence Between SNMIPv1/v2/v3
- 2578: SMXv2
- 2579: Text Conv. for High Capacity Data Types
- 2633: Interfaces MIB
2865 RADIUS
2866 RADIUS Accounting
2868 RADIUS Attributes for Tunnel Prot.
2869 RADIUS Extensions
3268 AES Ciphersuites for TLS
3410 Internet Standard Mgmt. Framework
3411 SNMP Management Framework
3412 Message Processing and Dispatching
3413 SNMP Applications
3414 User-based security model View-based control model
3416 SNMP-v2
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
4134 3268 AES Ciphersuites for TLS
4251 LDAP Extensions
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
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 Technologies 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 Technologies representative.

EU Battery Directive REACH
EU EEE

Energy
Japan: JEL

Learn more at DellTechnologies.com/Networking