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-ON 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.

*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
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).

<table>
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<tr>
<th>Product</th>
<th>Description</th>
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<tr>
<td><strong>N2200-ON Series</strong></td>
<td><strong>OS6 Options (with pre-installed OS6 NOS)</strong></td>
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<tr>
<td></td>
<td>• N2224X-ON IO/PS airflow with OS6: 24x RJ45 10M/100M/1G/2.5G auto-sensing ports, 4x SFP28 ports, 2x 40G QSFP+ ports, 1x 550W PSU included</td>
</tr>
<tr>
<td></td>
<td>• N2224X-ON PS/IO airflow with OS6: 24x RJ45 10M/100M/1G/2.5G auto-sensing ports, 4x SFP28 ports, 2x 40G QSFP+ ports, 1x 550W PSU included</td>
</tr>
<tr>
<td></td>
<td>• 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 10M/100M/1G/2.5G 802.3bt Type-3 (up to 60W) PoE auto-sensing ports, 4x SFP28 ports, 2x 40G QSFP+ ports, 1x 1050W PSU included</td>
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<tr>
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<td>• N2248X-ON IO/PS airflow with OS6: 48x RJ45 10M/100M/1G/2.5G auto-sensing ports, 4x SFP28 ports, 2x 40G QSFP+ ports, 1x 550W PSU included</td>
</tr>
<tr>
<td></td>
<td>• N2248X-ON PS/IO airflow with OS6: 46x RJ45 10M/100M/1G/2.5G auto-sensing ports, 4x SFP28 ports, 2x 40G QSFP+ ports, 1x 550W PSU included</td>
</tr>
<tr>
<td></td>
<td>• 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 110M/100M/1G/2.5G 802.3bt Type-3 (up to 60W) PoE auto-sensing ports, 4x SFP28 ports, 2x 40G QSFP+ ports, 1x 1600W PSU included</td>
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<td><strong>Power cords</strong></td>
<td>C13 to NEMA 5-15, 3M</td>
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<td>C13 to C14, 2M</td>
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<tr>
<td><strong>Power shelves (optional)</strong></td>
<td>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 **</td>
</tr>
</tbody>
</table>
| **Power supplies (optional)** | 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 GEN2  
Transceiver, SFP28 25GbE, LR  
Transceiver, SFP28 25GbE, SR-NOF  
Transceiver, QSFP+ 40GbE, QSFP-40G-SR4  
Transceiver, QSFP+ 40GbE, QSFP-40G-LR4 | **Planned in Roadmap**  
*** Auto-negotiation not supported, using 1G optics require manual configuration and all 4x10G SFP+ or 4x25G SFP28 ports to be set to same speed. 100M speed not supported.  
**** Auto-negotiation not supported, using 10G cables or optics require manual configuration and all 4x25G SFP28 ports to be set to same speed. 100M/1G speed not supported.
### 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), 1050W AC (N2248PX-ON), 1600W AC (N2248PX-ON)
- Dual firmware images on-board
- Switching engine model: Store and forward
- Dual firmware images on-board
- 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 (N2248PX-ON), 15.1lbs/6.9kg (N2248X-ON), 15.8lbs/7.2kg (N2248PX-ON)
- Environmental
  - Power supply efficiency: 80% or better in all operating modes
  - Max. thermal output (BTU/hr): 238W (N2224X-ON), 14.495 (N2248PX-ON), 11.12 (N2248X-ON), 8.478 (N2248PX-ON)
  - Power consumption max (watts): 812 (N2224X-ON), 1318W (N2248PX-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)

#### 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)
- 40GbE, QSFP+ to QSFP+, Active optical (3M, 10M)

#### Fans (spare)

- Fan module, I/O to PSU Airflow
- Fan module, PSU to I/O Airflow (for N2224X-ON, N2248X-ON only)

#### Network Operating System specifications

- Software specifications listed below are applicable for OS6. For detailed specifications of the NOS, please contact your Dell Technologies 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
- IPv4 routing interfaces: 256
  - VLAN routing interfaces: 128
  - VLAGs 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): 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
- Dell 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)
  - Dell 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 Gigabit Ethernet (1000BASE-T)
- 802.3ab 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 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

- 1058 RIPv1
- 1724 RIPv2 MIB Extension
- 2082 RIP-2 MDS Auth
- 2453 RIP-2
- 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 v1v2v3 Snooping and Querier
- IEEE 802.1aq 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 sTCM
- 4115 tTCM
- Dell L4 Trusted Mode
- Dell UDL
## Technical specifications

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