DELL EMC POWERSWITCH
N3200-ON SERIES SWITCHES

High performance Open networking 1GbE and 10GbE Multigigabit switches for modern campus networks

The N3200 switch series offers power-efficient and resilient 1GbE and 1/2.5/5/10GbE Multigigabit range of switching solution for advanced Layer 3 distribution for offices and campus networks. The series has high-performance capabilities and wire-speed performance utilizing a non-blocking architecture to easily handle unexpected traffic loads. Use of dual internal hot-swappable 80PLUS Platinum certified power supplies for high availability and power efficiency. The switches offer simple management and scalability via an 400Gbps (full duplex) high-availability stacking architecture that allows management of up to 12 switches from a single IP address.

Modemize campus network architectures

Modemize campus network architectures with a power-efficient and resilient 1/2.5/5/10GbE switching solution with dense options of 802.3at (30W) or 802.3bt (60W/90W) PoE solutions to deliver clean power to wide range network devices such as wireless access points (APs), Voice-over-IP (VoIP) handsets, video conferencing systems, security cameras, LED luminaires and many more. Achieve high availability and full bandwidth utilization with Multichassis Link Aggregation (MLAG). N3200 series switches support MLAG to create active/active loop-free redundancy without spanning tree. Server rooms can deliver reliable server and storage connectivity with features to help save time and avoid configuration errors. N3200 supports VRF-lite, allowing it to be partitioned into multiple virtual routers with isolated control and data planes on the same physical switch.

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. OS6 common command line interface (CLI) and graphic user interface (GUI) are intuitive, so skilled network administrators can get productive quickly. N3200 switches also support the Open Network Install Environment (ONIE), enabling installation of alternate network operating systems.

Deploy with confidence at any scale

N3200 series switches help create performance assurance with a data rate up to 1560Gbps (full duplex) and a forwarding rate up to 2167Mpps. Scale easily with built-in rear stacking ports. Switch stacks of up to 624 1/2.5/5/10GbE/25GbE ports can be managed from a single screen using the highly available stacking architecture for high-density aggregation with seamless redundant availability. The N-series switches' lifetime warranty covers software upgrades, hardware repair or replacement, and optics and cables purchased with the switch.

Hardware, performance and efficiency

- 1GbE Switches: 1RU switches with up to 48 line-rate 1GbE ports of copper or fiber, and four integrated 10GbE SFP+ ports. PoE variants with up to 48 ports of 802.3at (30W) PoE.
- Multigig Switches: 1RU switches with up to 48 line-rate 1G/2.5G/5G/10GbE copper ports with four integrated 25GbE SFP28 ports. PoE variants with up to 48 ports of 802.3bt (90W) PoE.
- 400Gbps stacking bandwidth using two 100GbE QSFP28 integrated rear stacking ports.
- Available with dual 80PLUS Platinum certified hot swappable internal power supplies. Optional external power supply to extend PoE budgets on specific models.
- Variable speed fan operation helps decrease cooling and power costs.
- Energy-Efficient Ethernet and lower power PHYs reduce power to inactive ports and idle links, providing energy savings from the power cord to the port.
- Dell EMC Fresh Air compliance for operation in environments up to 113°F (45°C) reduces cooling costs.

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 EMC 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 Advanced IPv4 and IPv6 functionality including BGP, VRF, BFD, PIM-SM/DM/SSM, IGMP/MLD, RIPv1/v2, OSPFv2/v3
- VXLAN support in hardware only
- MACsec support in N3248PX-ON hardware only

1 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. See details at https://www.dell.com/en-us/work/shop/networkingwarranty

2 Can be used if enabled by ON partner network operating system.
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| **N3200 series** | **OS6 Options (with pre-installed OS6 NOS)**  
- N3208PX-ON IO/PS Airflow, with OS6: 4x RJ45 10M/100M/1G/2.5G/5G 802.3bt (up to 90W) PoE autosensing ports, 4x 10G SFP+ ports, 1x 320W AC PSU included  
- N3224T-ON IO/PS Airflow, with OS6: 24x RJ45 10/100/1000Mb auto-sensing ports, 4x 10G SFP+ ports, 2x 100G QSFP28 ports, 1x 550W AC PSU included  
- N3224T-ON PS/IO Airflow, with OS6: 24x RJ45 10/100/1000Mb auto-sensing ports, 4x 10G SFP+ ports, 2x 100G QSFP28 ports, 1x 550W AC PSU included  
- N3224F-ON IO/PS Airflow, with OS6: 24x 1G SFP, 4x 10G SFP+ ports, 2x 10G QSFP28 ports, 1x 550W AC PSU included  
- N3224P-ON IO/PS Airflow, with OS6: 24x RJ45 10/100/1000Mb 802.3at (up to 30W) PoE autosensing ports, 4x 10G SFP+ ports, 2x 100G QSFP28 ports, 1x 1050W AC PSU included  
- N3224PX-ON IO/PS Airflow, with OS6: 24x RJ45 10/100/1000Mb 802.3bt (up to 90W) PoE autosensing ports, 4x 25G SFP28 ports, 2x 100G QSFP28 ports, 1x 1600W AC PSU included  
- N3248TE-ON IO/PS Airflow, with OS6: 48x RJ45 10/100/1000Mb auto-sensing ports, 4x 10G SFP+ ports, 2x 100G QSFP28 ports, 1x 550W AC PSU included  
- N3248TE-ON PS/IO Airflow, with OS6: 48x RJ45 10/100/1000Mb auto-sensing ports, 4x 10G SFP+ ports, 2x 100G QSFP28 ports, 1x 550W AC PSU included  
- N3248TE-ON IO/PS Airflow, with OS10: 48x RJ45 10/100/1000Mb auto-sensing ports, 4x 10G SFP+ ports, 2x 100G QSFP28 ports, 1x 550W AC PSU included  
- N3248TE-ON PS/IO Airflow, with OS10: 48x RJ45 10/100/1000Mb auto-sensing ports, 4x 10G SFP+ ports, 2x 100G QSFP28 ports, 1x 550W AC PSU included  
- N3248PXE-ON IO/PS Airflow, with OS6: 48x RJ45 10/100/1000Mb 802.3bt (up to 90W) PoE autosensing ports, 4x 25G SFP28 ports, 2x 100G QSFP28 ports, 1x 1600W AC PSU included  
- N3248PXE-ON PS/IO Airflow, with OS6: 48x RJ45 10/100/1000Mb 802.3bt (up to 90W) PoE autosensing ports, 4x 25G SFP28 ports, 2x 100G QSFP28 ports, 1x 1600W AC PSU included  |
| **NO-OS Options (no pre-installed NOS, recommended for use with Enterprise SONiC Distribution by Dell Technologies)**  
- N3248TE-ON IO/PS Airflow, NO-OS: 48x RJ45 10/100/1000Mb auto-sensing ports, 4x 10G SFP+ ports, 2x 100G QSFP28 ports, 1x 550W AC PSU included  
- N3248TE-ON PS/IO Airflow, NO-OS: 48x RJ45 10/100/1000Mb auto-sensing ports, 4x 10G SFP+ ports, 2x 100G QSFP28 ports, 1x 550W AC PSU included  |
| **OS10 Options (with pre-installed OS10 NOS)**  
- N3248TE-ON IO/PS Airflow, with OS10: 48x RJ45 10/100/1000Mb auto-sensing ports, 4x 10G SFP+ ports, 1x 550W AC PSU included  
- N3248TE-ON PS/IO Airflow, with OS10: 48x RJ45 10/100/1000Mb auto-sensing ports, 4x 10G SFP+ ports, 1x 550W AC PSU included  |
| **Power cords** | C15 to NEMA 5-15, 1.8M (N3208PX-ON only)  
C13 to NEMA 5-15, 3M (all other N3200 platforms)  
C13 to C14, 2M (all other N3200 platforms)  |
| **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 N3224PX-ON, N3248P-ON, N3248PXE-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 1500W DC PSUs), Extends PoE budget for N3224PX-ON, N3248P-ON, N3248PXE-ON |
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| **Power supplies (optional)** | - 320W AC external power adapter, adds redundancy and/or extends PoE budget for N3208PX-ON  
- 550W AC hot swappable with IO/PS airflow, adds redundancy to N3224T-ON, N3224F-ON, N3248TE-ON, N3248X-ON  
- 550W AC hot swappable with PS/IO airflow, adds redundancy to N3224T-ON, N3248TE-ON, N3248X-ON  
- 1050W AC hot swappable, adds redundancy and/or extends PoE budget for N3224P-ON, N3248P-ON. Also used with MPS-1S shelf, MPS-3S Shelf  
- 1600W AC hot swappable, adds redundancy and/or extends PoE budget for N3224PX-ON, N3248PX-ON. Also used with MPS-1S shelf, MPS-3S Shelf  
- 2000W AC hot swappable, extends PoE budget, used with MPS-1S Shelf, MPS-3S Shelf  
- 550W DC hot swappable with IO/PS airflow, adds redundancy to N3224T-ON, N3248TE-ON, N3248X-ON  
- 550W DC hot swappable with PS/IO airflow, adds redundancy to N3224T-ON, N3248TE-ON, N3248X-ON  
- 1300W DC hot swappable, adds redundancy and/or extends PoE budget for N3224P-ON, N3248P-ON, N3224PX-ON, N3248PX-ON. Also used with MPS-1S shelf, MPS-3S Shelf |
Hardware specifications

Physical
2 integrated rear 100Gbe QSFP28 stacking ports (except N3208PX-ON)
Out-of-band management port (10/100/100BASE-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 N3232 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
Energy-Efficient Ethernet per port settings
Redundant variable speed fans
Air flow: I/O to power supply

Power supply:
Integrated 320W (N3208PX-ON), 550W (N3224T-ON, N3224F-ON, N3248TE-ON, N3248BX-ON), 1050W (N3224P-ON, N3248PX-ON, N3248PXE-ON), 1600W (N3224PX-ON, N3248PXE-ON), 2240W (N3224F-ON), 9440W (N3224P-ON), 8270W (N3208PX-ON), 2010W (N3224T-ON), 11500W (N3248TE-ON, N3248PX-ON, N3248PXE-ON).

Packet buffer memory:
SSD: 8GB, 32GB for N3248TE-ON
16GB (N3248PX-ON, N3248PXE-ON)

Performance

Max. throughput (BTU/hr):
2821 (N3208PX-ON), 686 (N3224T-ON), 764 (N3224F-ON), 3220 (N3224P-ON), 9344 (N3224PX-ON), 725 (N3248TE-ON), 5719 (N3248PX-ON), 1637 (N3248BX-ON), 18224 (N3248PXE-ON)

Power consumption max (watts):
827 (N3208PX-ON), 201 (N3224T-ON), 224 (N3224F-ON), 944 (N3224P-ON), 2740 (N3224PX-ON), 212 (N3248TE-ON), 1677 (N3248PX-ON), 480 (N3248BX-ON), 5344 (N3248PXE-ON)

Operating temperature: 32° to 113°F (0° to 45°C)

Scaling performance
MAC addresses: 32K
Link aggregation:
128 LAG groups, 144 dynamic ports per stack, 8 member ports per LAG

Power supply efficiency: 90% or better in all operating modes

Environmental

Power supply efficiency: 90% or better in all operating modes

Chassis
Size (1RU, H x W x D):
N3208PX-ON: 1.71 in x 11 in x 12.28 in;
N3224PX-ON, N3224F-ON, N3224P-ON:
N3224T-ON, N3224P-ON:
N3208PX-ON: 1.71 in x 11 in x 17.03 in

Approximate weight (Switch with 1 PSU installed):
8.4lbs/3.84kg (N3208PX-ON), 13.7lbs/6.24kg (N3224F-ON), 16.7lbs/7.57kg (N3248PXE-ON), 16lbs/7.26kg (N3248PX-ON, N3248PXE-ON)

Operating temperature: 32° to 113°F (0° to 45°C)

Switching engine model: Store and forward

Power supply efficiency: 90% or better in all operating modes

Power consumption max (watts):
18224 (N3248PXE-ON)
5719 (N3248P-ON), 1637 (N3248PX-ON), 9344 (N3224PX-ON), 723 (N3248TE-ON), 1677 (N3248PX-ON, N3248PXE-ON)

Network Operating System specifications
Software specifications listed below are applicable for OS6. For detailed specifications of NOS, please contact your Dell Technologies representative.

Scaling performance
MAC addresses: 32K
Link aggregation:
128 LAG groups, 144 dynamic ports per stack, 8 member ports per LAG
Priority queues per port: 8
Static routes: 1,024 (IPv4)/1,024 (IPv6)
Dynamic routes: 8,158 (IPv4)/4,096 (IPv6)
OSPF routing interfaces: 8,158
RIP routing interfaces: 512
ECMP next hops per route: 16
ECMP groups: 1024
VLAN routing interfaces: 128
VLANs supported: 4,094
Protocol-based VLANS: Supported
Multicast forwarding entries:
1,536 (IPv4), 512 (IPv6)
ARP entries: 6,444
NDP entries: 2,560
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):
1,021 (ingress), 511 (egress)
Max ACL rules per interface (IPv6):
1,021 (ingress), 509 (egress)
Max VLAN interfaces with ACLs applied: 24

IEEE compliance
802.1AB LLDP
Dell VEPA VLAN
Dell ISDP
802.1D Bridging, Spanning Tree
802.1p Ethernet Priority (User Provisioning and Mapping)
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 Addressing
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 (N3224P-ON, N3248PX-ON, N3208PX-ON, N3248PXE-ON)
802.3X LAG Load Balancing
Dell Multi-Chassis LAG (MLAG)
Dell Policy Based Forwarding
802.3az Energy Efficient Ethernet (EEE)
802.3u Fast Ethernet (100BASE-TX) on management ports
802.3x Flow Control
803.3z Gigabit Ethernet (1000BASE-X)
803.3zd 1G/2.5G/5/10G
ANSI LLDP-MED (TIA-1057)
Dell EqualLogic iSCSI Auto-configuration
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
1274 RIPv2 MIB Extension
1765 OSPF DB overflow
1850 OSPF MIB
2082 RIP-2 MD5 Auth
2328 OSPFv2
2338 VRRP
2370 opaque
Dell Policy Based Routing
2453 RIPv2
2740 OSPFv3
2787 VRRP MIB
3101 NSSA
3157 OSPF Stub Router Advert
3623 Graceful Restart
3768 VRRP
4271 BGP
5187 OSPFv3 Graceful Routing Restart

Multicast
1122 IGMPv1
2236 IGMPv2
2365 Admin scoped IP
2710 MLDV1
2932 IPv4 MIB
2953 IGMP MIB
3810 MLDV2
3973 PIM-DO
4541 IGMP v1/v2/v3 Snooping and Querier
5060 PIM MIB
5061 PIM MIB
3576 IGMPv3
Dell Static IP Multicast
Draft-ietf-pim-sm-bar-05
Draft-ietf-pim-sm-bar-06
Draft-ietf-mdmr-dvmrp-03-10 DVMRP
Draft-ietf-magma-igmp-proxy-06.txt
IGMP/MLD Proxying
Draft-ietf-magma-igmpv3-and-routing-05.txt
draft-ietf-idmr-dvmrp-v3-10 DVMRP
Draft-ietf-magma-mgmd-mib-05
draft-ietf-pim-bar-mib-06
IEEE 802.1ag draft 81 – Connectivity Fault Management (CFM)
IEEE 802.1p QoS Dynamic L2 Multicast
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