The Dell EMC Networking MX5108n Ethernet Switch is a high-performance, low latency single chassis 25Gbps Ethernet switch purpose-built for the PowerEdge™ MX platform providing enhanced capabilities and cost-effectiveness for enterprise and mid-market environments with traditional compute traffic environments.

Delivering industry leading performance in a blade switch, the non-blocking switching architecture in the MX5108n provides line-rate 25GbE L2 and L3 forwarding capacity with no oversubscription and a sub 800ns latency. In addition to 8 internal 25GbE ports, the MX5108n provides four 10G-BaseT, two QSFP28 100GbE, and one QSFP+ 40GbE port for uplinks.

**Maximum performance and functionality**

The Dell EMC Networking MX5108n is a high-performance, multi-function, 25GbE Ethernet switch designed for applications in demanding data center, cloud and computing environments. The MX5108n also supports the open source Open Network Install Environment (ONIE) for zero touch installation of alternate operating systems in future releases.

**OS10 SmartFabric**

SmartFabric OS10 is a Network Operating System supporting multiple architectures and environments. The networking world is moving from a monolithic stack to a pick-your-own world. The OS10 solution is designed to allow multi-layered disaggregation of network functionality. While OS10 contributions to Open Source provide users freedom and flexibility to pick their own 3rd party networking, monitoring, management and orchestration applications, OS10 bundles an industry hardened networking stack featuring standard L2 and L3 protocols over a standard and well accepted CLI interface.

**SmartFabric Services**

Included in SmartFabric OS10, SmartFabric Services provides single pane of glass management and automation across every fabric in a PowerEdge MX deployment, up to the 20 chassis Multi-Chassis Management group limit. SmartFabric Services key features include:

- I/O Aggregation to simplify connectivity to existing networks
- Integration of VLAN and automated QoS settings with Server Deployment Templates
- Fabric-wide firmware upgrades and configuration consistency checks
- Automatic topology validation – detects physical topology misconfigurations and provides corrective guidance
- Automatically heals fabric upon failure condition removal

**Key applications**

- Organizations looking to enter the software-defined data center era with a choice of networking technologies designed to deliver the flexibility they need
- Native 25 GbE server access in high-performance data center environments
- 25 GbE backward compatible to 10G and 1G for future proofing and data center server migration to faster uplink speeds.
- iSCSI storage deployment including DCB converged lossless transactions

**Key features**

- Up to 960Gbps of switching I/O bandwidth (full duplex) available and non-blocking switching fabric delivering line-rate performance under full load with sub usec latency
- Scalable L2 and L3 Ethernet switching with QoS and a full complement of standards-based IPv4 and IPv6 features, including OSPF and BGP routing support
- L2 multipath support via Virtual Link Trunking (VLT) and multiple VLT (mVLT) multi-chassis link aggregation technology
- NVMe-oF ready to support the next generation of high performance storage
- Jumbo frame support for large data transfers
- 128 link aggregation groups with up to sixteen members per group, using enhanced hashing
- Converged network support for DCB, with priority flow control (802.1Qbb), ETS (802.1Qaz), DCBx and iSCSI TLV support
- Supports Routable RoCE to enable convergence of compute and storage

**Key features with OS10**

- Consistent DevOps framework across compute, storage and networking elements
- Standard networking features, interfaces and scripting functions for legacy network operations integration
- Standards-based switching hardware abstraction via Switch Abstraction Interface (SAI)
- Pervasive, unrestricted developer environment via Control Plane Services (CPS)
- Open and programmatic management interface via Common Management Services (CMS)
- OS10 software enables Dell EMC layer 2 and 3 switching and routing protocols with integrated IP Services, Quality of Service, Manageability and Automation features
- Platform agnostic via standard hardware abstraction layer (OCP-SA)
- Unmodified Linux kernel and unmodified Linux distribution
- Leverage common open source tools and best-practices (data models, commit rollbacks)
- Scalable L2 and L3 Ethernet Switching with QoS, ACL and a full complement of standards based IPv4 and IPv6 features including OSPF, BGP and PBR

- Enhanced mirroring capabilities including local mirroring, Remote Port Mirroring (RPM), and Encapsulated Remote Port Mirroring (ERPM)
- Converged network support for DCB, with priority flow control (802.1Qbb), ETS (802.1Qaz), DCBx and iSCSI TLV
- Rogue NIC control provides hardware-based protection from NICS sending out excessive pause frames

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
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<tr>
<td>MX5108n Ethernet Switch</td>
<td>Transceiver, 100GbE, SR4 QSFP28</td>
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<tr>
<td></td>
<td>Transceiver, 100GbE, LR4 QSFP28</td>
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<td>Transceiver, 100GbE, ESR4 QSFP28</td>
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<td>Transceiver, 100GbE, PSM4 500m QSFP28</td>
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<td>Transceiver, 100GbE, CWDM4 2km QSFP28</td>
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<td>Transceiver, 100GbE, SWDM4 100m QSFP28</td>
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<td></td>
<td>Transceiver, 100GbE, BIDI optic QSFP28</td>
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<tr>
<td></td>
<td>Transceiver, 40GbE, SR4 optic QSFP+</td>
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<td></td>
<td>Transceiver, 40GbE, eSR4 optic QSFP+</td>
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<td></td>
<td>Transceiver, 40GbE, eSR4 optic QSFP+</td>
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<td>Transceiver, 40GbE, LR4 optic QSFP+</td>
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<td>Transceiver, 40GbE, BIDI optic QSFP+</td>
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<td>Transceiver, 40GbE, PSM4 10Km QSFP+</td>
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<td></td>
<td>Transceiver, 40GbE, LM4 Duplex QSFP+</td>
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<td>Transceiver, 40GbE, SM4 Duplex QSFP+</td>
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<tr>
<td>Cables</td>
<td>100GbE, QSFP28 to QSFP28, active optical, passive DAC</td>
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<tr>
<td></td>
<td>100GbE, QSFP28 to 4xSFP28 (4x10/25GbE), active optical, passive DAC</td>
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<tr>
<td></td>
<td>100GbE, MTP to MTP optical</td>
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<tr>
<td></td>
<td>100GbE, MTP to 4xLC optical breakout</td>
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<td></td>
<td>40GbE, QSFP+ to QSFP+, active optical &amp; passive DAC</td>
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<tr>
<td></td>
<td>40GbE, QSFP+ to 4xSFP+ (4x10GbE), active optical &amp; passive DAC</td>
</tr>
<tr>
<td>Software</td>
<td>SmartFabric OS10</td>
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<tr>
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<td>Select third-party operating system offerings (future)</td>
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</tbody>
</table>
Physical
Full featured 25/100GE switch in PowerEdge MX
Fabric A/B I/O sled form factor
1 USB 2.0 type A storage port
1 micro USB type B port for console/management port access
Indicators:
  Power/Health LED
  LED
  Link/activity LEDs
Size: 118”x 171”w x 10.94”d
Weight: 7272s (3.5kg)
Max. power consumption: 65 Watts
Typ. power consumption: 63.3 Watts
Max. operating specifications:
  Standard Operating Temperature 10°C to 35°C
  (50°F to 95°F)
  Operating Relative Humidity 5% to 85%, noncondensing
Max. non-operating specifications:
  Storage temperature: -40°C to 65°C
  (40°F to 149°F)
  Storage humidity: 5 to 95% (RH), noncondensing
Expanded Operating Temperature, Continuous Operation; 5°C to 40°C at 5% to 85% RH with 29°C dew point
Note: Outside the standard operating temperature, the system can operate continuously in temperatures as low as 5°C and as high as 40°C. For temperature between 35°C to 40°C, de-rate maximum allowable temperature by 1°C per 175m above 950m (1°F per 319 ft)

Redundancy
Redundant Power and Cooling provided by Dell EMC PowerEdge MX7000 Chassis

Performance
Switching I/O bandwidth: 960 Gbps
Forwarding capacity: 363 Mpps
Latency: Sub 800ns
MAC addresses: 273K
IPv4 Unicast routes: 200K
IPv6 Unicast routes: 160K
ARP entries: 48K
Layer 2 VLANs: 40K P*V in Full Switch mode
Layer 3 VLANs: 10K P*V in Full Switch mode
MST: 32 instances
PVST+: 128 instances
LAG: 128 groups, 16 members per LAG group
ACL Entries-IPv4 Ingress: 2303
ACL Entries-IPv4 Egress: 511
ACL Entries-IPv4 Ingress: 2303
ACL Entries-IPv6 Egress: 255
ACL Entries-IPv6 Ingress: 767
iSCSI Number of sessions: 256
Jumbo Frames: 9K

IEEE Compliance
802.1AB  LLDP
TIA-1057  LLDP-MED
802.3ad  Link Aggregation
802.1Q  VLAN Tagging
802.1p  L2 Prioritization
802.1Q  VLAN Tagging
802.1s  MSTP
802.1w  RSTP
802.1t  RPVST+
734B  VxLAN
VLT (Virtual Link Trunking) VRRP Active/Active
RSTP, MSTP & RPVST+
Port Mirroring on VLT ports
DCBx, ISCSI, FSB on VLT
RMF/ERP or over VLT
VLT Minloss upgrade
VxLAN with VLT
VRF with VLT
IGML/MLD snooping over VLT
PIM SM/SSM over VLT
RFC Compliance
768  UDF
793  TCP
854  Telnet
959  FTP
1321 MD5
1350 TFTP
2474 Differentiated Services
2698 Two Rate Three Color Marker
3164 Syslog
4254 SSHv2
General IPv4 Protocols
791  IPv4
792  ICMP
826  ARP
1027 Proxy ARP
1035 DNS (client)
1042 Ethernet Transmission
1191 Path MTU Discovery
1305 NTPv4
1519 CIDR
1812 Routers, Static Routes
1858 IP Fragment Filtering
1918 Address Allocation for Private Internets
2131 DHCPv4 (server and relay)
2474 DiffServ Field in IPv4 and IPv6 Headers
3231 9-bit Prefixes
3916 Reliable Delivery for Syslog
3246 Expedited Forwarding PHB Group
5798 VRRPv3
General IPv6 Protocols
1981 Path MTU for IPv6
2372 IPv6 Addressing
2490 IPv6 Protocol Specification
2461 Neighbor Discovery
2462 Stateless Address AutoConfig
2463 ICMPv6
2464 Ethernet Transmission
2675 IPv6 Jumbograms
2664 Transmission of IPv6 Packets over Ethernet Networks
2711 IPv6 Router Alert
3493 Basic Socket Interface
3542 Advanced Socket, API
3587 Global Unicast Address Format
3848 Default Address Selection
4007 IPv6 Scoped Address Architecture
4213 Basic Transition Mechanisms for IPv6 Hosts and Routers
4291 IPv6 Addressing
3633 DHCPv6 Relay
IPv6 Static Routes
OSPF (V2/V3)
1745 OSPF/BGP interaction
1768 OSPF Database overflow
2154 OSPF with Digital Signatures
2328 OSPFv2
2370 Opalque LSA
3101 OSPF NSSA
4552 OSPFv3 Authentication
Multicast
2232 IGMPv2 Snooping
3810 MLDPv2 Snooping
Security
1492 TACACS (Authentication, Accounting, Authorization)
2865 RADIUS
3182 RADIUS and IPv6
3579 RADIUS support for EAP
3850 802.1X with RADIUS
3826 AES Cipher in SNMP
Control Plane, VTY ACLS
IP Access Control Lists
BGP
1997 Communities
2385 MD5
2439 Route Flap Damping
2545 BGP-4 Multiprotocol Extensions for IPv6 Inter-Domain Routing
2796 Route Reflection
2858 Multiprotocol Extensions
2918 Route Refresh
3065 Confederations
4271 BGP-4
4360 Extended Communities
4893 4-byte ASN
5396 4-byte ASN Representation
5492 Capabilities Advertisement
5549 BGP Unnumbered
BGP ADD PATH
BGP to OSPF route distribution
BGP EVPN
L2 & L3 Gateway with VxLAN Tunnels
BGP EVPN Symmetric IRB
Type 5 Routes
Linux Distribution
Debian Linux version 8
Linux Kernel 3.16
MIBS
BRIDGE-MIB
ENTITY-MIB
EtherLike-MIB
HOST-RESOURCES-V2-MIB
IEEE8021-PFC-MIB
IEEE8023-LAG-MIB
IF-MIB
IP-FORWARD-MIB
IP-MIB
LLDP-EXT-DOT1-MIB
LLDP-EXT-DOT3-MIB
LLDP-MIB
Network Management and Monitoring
- SNMPv1/v2c/v3
- IPv4/IPv6 Management support
- Telnet, FTP, TACACS, RADIUS, SSH, NTP
- Port Mirroring
- RPM/ERPM
- 3176 SFlow
- Support Assist (Phone Home)
- RestConf APIs, Auto-docs
- XML Schema
- CLI Commit (Scratchpad)
- Uplink Failure Detection
- Object Tracking
- FarEnd Failure Detection
- Bidirectional Forwarding Detection (BFD) – BGPv4/6, OSPFv2/3, Static Routes
- Streaming Telemetry
- System, Buffers, Data monitoring
- gRPC Transport with gPB encoding

Automation
- Control Plane Services APIs
- Linux Utilities and Scripting Tools
- CLI Automation (Multiline Alias)
- Ansible, Puppet, Chef, SaltStack
- Zero Touch Deployment (ZTD)
- 3rd party packages support on Docker Container

Quality of Service
- Prefix List
- Route-Map
- Rate Shaping (Egress)
- Rate Policing (Ingress)
- Scheduling Algorithms
  - Round Robin
  - Weighted Round Robin
  - Deficit Round Robin
  - Strict Priority
  - Weighted Random Early Detect

Data center bridging
- 802.1Qbb Priority-Based Flow Control
- 802.1Qaz Enhanced Transmission
  - Selection (ETS)
- Explicit Congestion Notification
- Data Center Bridging eXchange (DCBx)
- DCBx Application TLV (iSCSI, FCoE)
- RoCEv2
- Fibre Channel
- FIP Snooping

Regulatory compliance

Safety
- UL/CSA 60950-1, Second Edition
- EN 60950-1, Second Edition
- IEC 60950-1, Second Edition Including all National Deviations and Group Differences
- FDA Regulation 21 CFR 1040.10 and 1040.11

Emissions
- Australia/New Zealand: AS/NZS CISPR 32:2015, Class A
- Canada: ICES-3/NMB-3, Class A
- Europe: EN 55024:2010 (CISPR 24:2010), Class A
- Japan: VCCI V-3/2010.04 Class A
- USA: FCC CFR 47 Part 15, Subpart B:2011, Class A

Immunity
- EN 300 386 V1.6.1 EMC for Network Equipment
- EN 55024:2010
- EN 61000-3-2: Harmonic Current Emissions
- EN 61000-3-3: Voltage Fluctuations and Flicker
- EN 61000-4-2: ESD
- EN 61000-4-3: Radiated Immunity
- EN 61000-4-4: EFT
- EN 61000-4-5: Surge
- EN 61000-4-6: Low Frequency Conducted Immunity

RoHS
- EN 50581:2012 All MX5108n components are EU RoHS compliant

Learn more at DellTechnologies.com/Networking