Dell Force10 Z9000
Data Center Core Switch

Highly available, high performance distributed core

The Dell Force10 Z9000 is a compact next generation switch/router product designed to meet the requirements for high density 10/40 GbE aggregation in a data center core network. The Z9000 switch is designed to address data center 10/40 GbE aggregation requirements through Centralized Core or Distributed Core architectures for High Performance Enterprise data centers, High Performance Computing Cores, Cloud Computing Cores, Provider Hosted data centers and Enterprise LAN Cores. The Z9000 switch can be positioned as a Core switch or End-of-Row switch within a data center. The Z9000 product can support 32 ports of 40 GbE QSFP+ or 128 ports of 10 GbE SFP+ realized through breakout cables. The Z9000 switch supports a full suite of Ethernet switching and routing protocols in the hardened FTOS operating system to enable layer 2 or layer 3 network architectures.

Key applications
• Containerized Data Centers
• Provider Hosted Data Centers
• Cloud Computing Cores
• High performance Computing Cores

Key features
• 2RU high-density 10/40 GbE Aggregation/Core Switch with 32 x 40 GbE ports expandable to 128 x 10GbE ports using QSFP+ to SFP+ breakout cables
• 2.5 Tbps (full-duplex) non-blocking, fabric delivers line-rate performance under full load
• Scalable L2 and L3 Ethernet switching with QoS and a full complement of standards-based IPv4 for unicast and multicast applications
• Modular Force10 Operating System (FTOS) software delivers inherent stability as well as advanced monitoring and serviceability functions
• Data Center Bridging (DCB) hardware support enables a lossless Ethernet fabric for iSCSI storage and NFS traffic
• 128 link aggregation groups with up to 8 members per group, using advanced hashing with random seed values
• Supports jumbo frames for high-end server connectivity
• Reversible front-to-back or back-to-front airflow
• Total aggregated packet buffer memory of 54MB
• Redundant, hot-swappable power supplies and fans
• Hardware support for TRILL, EVB, DCB
• Low power consumption

Line rate, non-blocking, low-latency and lower power switch enabling a greener, faster data center
Specifications: Z9000 Data Center Core Switch

Dell SKU description

Product
Z9000, 32 x 40GbE QSFP+, 1 x AC PSU, 4 x Fans, IO panel to PSU Airflow
Z9000, 32 x 40GbE QSFP+, 1 x DC PSU, 4 x Fans, PSU to IO panel Airflow
Z9000, 32 x 40GbE QSFP+, 1 x DC PSU, 4 x Fans, PSU to IO panel Airflow

Redundant Power Supply
Z9000, AC Power Supply, IO panel to PSU Airflow
Z9000, DC Power Supply, PSU to IO panel Airflow
Z9000, DC Power Supply, PSU to IO panel Airflow

Packet buffer memory: 54MB
LAGs: 128 with up to 8 members per LAG
ACLs: 8K ingress, 4K egress

Line-rate Layer 3 routing
Queues per port: 8 COS queues

Switch fabric capacity: 2.56 Tbps (full-duplex)
IPv4 routes: 16K

Performance
MAC addresses: 128K
IPv4 routes: 16K
Switch fabric capacity: 2.56 Tbps (full-duplex)
Forwarding capacity: 1.9 bpps
Queues per port: 8 COS queues
L2 VLANs: 4096
Line-rate Layer 2 switching
Line-rate Layer 3 routing
ACLs: 8K ingress, 4K egress
LAGs: 128 with up to 8 members per LAG
LAG load balancing: based on Layer 2, IPv4 headers
Packet buffer memory: 54MB

IEEE Compliance
802.1X Network Access Control
802.3ae Gigabit Ethernet (100BASE-TX for management port)
802.3Qc Frame Extensions for VLAN Tagging
802.3ad Link Aggregation with LACP
802.3ae 1G Gigabit Ethernet (1GBASE-T)
802.3ao 40 Gigabit Ethernet (40GBASE-SR4, 40GBASE-LR4) on optical ports
802.3u Fast Ethernet (100BASE-TX) on mngmt ports
802.3x Flow Control
Force10 PVST+
MTU 1500 bytes

RFC and I-D Compliance

IEEE Compliance
802.1w  RSTP
802.1s  MSTP
802.1Q   VLAN Tagging, Double VLAN Tagging, GVRP
802.1p L2 Prioritization
802.1D  Bridging, STP

Network Management
SNMPv3
Management Frameworks
Message Processing and Dispatching
Coexistence Between SNMPv1/v2/v3
SNMPv2
SNMPv3

Environments

Physical
32 line-rate 40 Gigabit Ethernet QSFP+ ports
1 RJ45 console/mangement port with RS232 signaling
1 RJ45 10/100/1000 Base-T management port
1 x USB 2.0 type A port
1 x USB 2.0 type B console port

Power
Max. power consumption: 789 W
Max. current draw per system: 16.5 A at -48VDC
Max. thermal output: 2692 BTU/h

Redundancy
Hot swappable redundant power
Hot swappable redundant fans

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
EN 60825-1 Safety of Laser Products Part 1: Equipment Classification Requirements and User’s Guide
FCC Regulation 21 CFR 1040.10 and 1040.11

Emissions
Australia/New Zealand: AS/NZS CISPR 22: 2008, Class A
Canada: IECES-003:2004, Class A
Japan: VCCI V-2/2000.04 Class A
USA: FCC CFR 47 Part 15, Subpart B, Class A

Immunity
EN 301 489-17: EMC for Network Equipment
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
All 2-Z series components are RoHS compliant.

Learn more at Dell.com/Networking