



## DELL POWERSWITCH Z9864F-ON

High-performance, high-density open networking 800GbE multi-rate AI fabric switch

Dell PowerSwitch Z9864F-ON 800GbE fixed switch comprises Dell Technologies' latest disaggregated hardware and software data center networking solutions, providing state-of-the-art, high-density 100/200/400/800 GbE ports and a broad range of functionality to meet the growing demands of today's data center environment. This innovative, next-generation open networking high-density aggregation switch offers optimum flexibility and cost-effectiveness for artificial intelligence (AI) and machine learning (ML) fabric solutions, Web 2.0, enterprise, and Tier1/Tier2 cloud service provider data center networks with intensive compute and storage traffic, cloud, IoT, AI and streaming video requirements.

The PowerSwitch Z9864F-ON provides high-density of 64 ports of 800GbE in a OSFP112 form factor and 2U design. It can also be used as a 100/200/400 switch via breakout cables for a maximum of 320 ports.

Using industry-leading hardware and featuring Enterprise SONiC by Dell Technologies, the Z9864F-ON switch incorporates multiple architectural features that optimize data center fabric network flexibility, efficiency and availability, including IO panel to PSU and PSU to IO panel airflow for hot/cold aisle environments, redundant, hot-swappable power supplies and fans and delivers non-blocking performance for workloads sensitive to packet loss. The Z9864F-ON provides multi-rate speeds, enables denser footprints and simplifies migration to 800Gbps.

Priority-based flow control (PFC), data center bridge exchange (DCBX), RoCEv2 and enhanced transmission selection (ETS) make the Z9864F-ON ideally suited for DCB environments.

The Z9864F-ON hardware adds AI/ML fabric support enhancements such as versatile hashing\*, adaptive routing\*, cognitive routing\*, enhanced priority-based flow control queue configuration support\*, increased AI observability\* and Dell SmartFabric Manager\* support.

The Dell PowerSwitch Z9864F-ON switch supports the open-source Open Network Install Environment (ONIE) for zero touch installation of Enterprise SONiC by Dell Technologies, as well as of alternative network operating systems (when applicable).

### Key applications

- Organizations looking to enter the software-defined data center era with a choice of networking technologies designed to maximize flexibility
- High-capacity Ethernet fabrics for AI/ML training clusters, with up-to 8K GPU nodes in a single two-tier 400G fabric
- High density multi-rate 100/200/400/800GbE ToR/MoR server aggregation in high-performance data center environments at the desired fabric speed
- Fabric implementation in leaf and spine along with S-series ToR switches enabling cost-effective aggregation of 100/200/400/800 uplinks
- Multi-functional 100/200/400/800GbE switching in High Performance Computing clusters or other business-sensitive deployments requiring the highest bandwidth
- DCB\* and RoCEv2 converged lossless transactions
- NVMe/TCP and Dell SmartFabric Storage Software support for automation of storage services on a wide range of existing IP fabrics
- Autonomous data center network fabric deployment, expansion and lifecycle management with SmartFabric Services, automating and simplifying networking

### Key features

- 2U high-density 100/200/400/800GbE aggregation switch with up to 64 ports of 800GbE (OSFP112 PAM4), 128 ports of 400GbE (100GbE PAM4, breakout mode), 256 ports of 200GbE (breakout mode)\*\*, or 256x100G and either 32x800G or 64x400G\*\*
- OSFP112 ports support 100/200/400/800GbE
- 102.4Tbps switching capacity (full duplex), 51.2Tbps non-blocking (half duplex)
- IO panel to PSU airflow or PSU to IO panel airflow
- AC or DC\* PSU support
- Redundant, hot-swappable power supplies and fans
- Supports the open-source ONIE for zero-touch installation of alternate network operating systems
- Power-efficient design, implemented in a monolithic 5nm die package
- Power-efficient operation up to 45°C, helping reduce cooling costs in temperature-constrained deployments



\* Future software release for full feature functionality

\*\* Provisional breakout support at RTS

Product	Description
Z9864F-ON	Z9864F-ON, 64x 800GbE OSFP112, 2x SFP+, TAA Certified, with ONIE bootloader
Network Operating System	<a href="#">Enterprise SONiC Distribution by Dell Technologies</a>
Airflow Kits	AC – IO Panel to PSU Airflow, 2 AC PSUs and 4 fans AC – PSU to IO Panel Airflow, 2 AC PSUs and 4 fans DC – IO Panel to PSU Airflow, 2 DC PSUs and 4 fans DC – PSU to IO Panel Airflow, 2 DC PSUs and 4 fans
Optics, Cables and Cable Management	Please refer to <a href="#">Dell Networking Transceivers and Cables spec sheet</a> for complete list of optics and cables.

## Technical specifications

### Physical

64x800GbE OSFP112, 2x10GbE SFP+ ports  
1 RJ45 console/management via RS232  
1 USB-C for serial access console/management  
1 RJ45 10/100/1000BaseT Ethernet for management  
1 USB 3.0 Type A storage port

### Chassis

Size: 2U, 438.5 x 630 x 87.3 mm (W x D x H),  
17.26 x 24.80 x 3.43 inches (W x D x H)  
Switch without PSU and Fan tray: 44.1 lbs  
(20 kg)  
Switch with PSU and Fan trays: 55.8 lbs  
(25.3 kg)

### Environmental

Power supply: 100-240 VAC 50/60 Hz  
AC/DC inlet IEC60320 C20  
Max. power available:  
AC High Line: 3000W  
AC Low Line: 1500W  
DC: 3200W  
Max. utilized: 2848W  
Typ. power consumption: 1500W\*\*\*  
Max. operating specifications:  
Operating temperature: 32° to 113°F  
(0° to 45°C)  
Operating humidity: 8 to 90% (RH),  
non-condensing  
Max. non-operating specifications:  
Storage temperature: -40° to 149°F  
(-40° to 65°C)  
Storage humidity: 5 to 95% (RH),  
non-condensing  
Support lowline and highline AC power  
modes

### Redundancy

Hot swappable redundant power (1+1  
redundancy)\*\*\*\*  
Hot swappable redundant fans (3+1 redundant  
fan module). Each fan module with one  
dual-stacked fan.

### Performance

Switch fabric capacity: 51.2Tbps (half duplex)  
Forwarding capacity: 20.3Bpps  
Latency: sub-850ns  
Packet buffer memory: 165.2MB: 82.6MB per  
Ingress Traffic Manager (ITM) (there are 2  
per NPU)  
NPU Pipeline is programmable capable using  
NPL  
CPU: Intel® Xeon® D-1714 4 core @  
2.3GHz (up to 3.4GHz in Turbo mode)  
CPU memory: 32GB DDR4 ECC  
MAC addresses: 156K  
ARP table: 16K standalone, 8K shared  
IPv4 routes: up to 400K (ALPM)  
IPv6 routes: 300K  
Multicast hosts: 1K  
Multicast IPv6 routes: 4K  
Layer 2 VLANs: 4K  
MSTP: 64 instances  
LAG load balancing: Based on layer 2, IPv4 or  
IPv6 headers  
Timing Card supporting SyncE with Stratum 3E  
class OCO  
Timing card supporting PTP/1588 providing  
Class C Phase performance or better

### Security

Hardware Root of Trust features  
Secure Boot  
Trusted Platform Module TPM 2.0

### Optics Performance

Supports up to 48 ports of 20W and 16 ports of  
28W optics when in IO/PSU airflow direction.  
Supports up to 64 ports of 15W optics when in  
IO/PSU airflow direction.  
Supports up to 28W optics in some OSFP112  
ports in PSU/IO model.

For Network Operating System (NOS) specific  
features, refer to [Enterprise SONiC Distribution  
by Dell Technologies spec sheet](#).

Each switch unit comes with Console cables  
and an Accelerated Rack Mount rail kit.

### Regulatory compliance

#### Safety

UL/CUL 62368-1  
IEC/EN 62368-1 Including All National Deviations  
and Group Differences  
EN 60825-1 Safety of Laser Products Part 1:  
Equipment Classification Requirements and  
User's Guide  
EN 60825-2 Safety of Laser Products Part 2:  
Safety of Optical Fibre Communication  
Systems  
FDA Regulation 21 CFR 1040.10 and 1040.11

#### Emissions

AS/NZS CISPR: 32, Class A  
ICES-003, Class A  
EN55032/55035, Class A  
VCCI-CISPR 32, Class A  
FCC CFR 47 Part 15,  
Subpart B, Class A

#### Immunity

EN 300 386 EMC for Network Equipment  
EN 55035  
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 Z-series components are EU RoHS  
compliant

#### Certifications

Available with US Trade Agreements Act  
(TAA) compliance  
IPv6 Ready for both Host and Router

#### Warranty

1 year return to depot constrained

\*\*\* Typical power consumption measured at 25°C ambient with 100% load on all  
ports with DAC

\*\*\*\* Power redundancy is supported only in high power mode

## IT Lifecycle Services for Networking

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#### Optimize

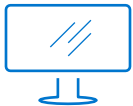
Maximize performance for dynamic IT environments with Dell Optimize. Benefit from in-depth predictive analysis, remote monitoring and a dedicated systems analyst for your network.



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