Dell PowerConnect
B-8000 Family Converged Top-Of-Rack Switches

As IT organizations continue to face the increased complexity of system configuration and ever-rising operational costs, they are looking for new ways to simplify their networking environments. To address this challenge, Dell offers a family of versatile switches that support both Fibre Channel and Fibre Channel over Ethernet (B-8000e is upgradable to FCoE) to help organizations simplify their growing infrastructures. The Dell™ PowerConnect™ B-8000 Family of switches provide reliable platforms that are designed to help reduce cable clutter, equipment acquisition costs, and operational costs associated with power consumption and cooling. These unique top-of-rack switches feature a low-profile 1U form factor and low power consumption (a maximum 350 watts), leading the way toward an efficient data center.

Do more with less

The PowerConnect B-8000 Family features 8, 8 Gbps Fibre Channel ports along with 24 Data Center Bridging (DCB)/Converged Enhanced Ethernet (CEE) ports. The DCB/CEE ports are capable of transporting both storage and LAN traffic—eliminating the need for separate SAN and LAN adapters and cables (option to upgrade to FCoE in the B-8000e model).

The top-of-rack PowerConnect B-8000 connects to servers through Converged Network Adapters (CNAs). The consolidated SAN and LAN server ports and corresponding cables simplify configuration and cabling in server cabinets to reduce infrastructure acquisition costs for server adapters, cables and switch ports. With fewer components using power or requiring cooling, organizations can maintain, on an IP network, the same level of lossless performance delivered in a storage network while saving on operating costs.

Non-disruptive SAN integration and Consolidation at own pace

With PowerConnect B-8000 Family organizations can protect existing data center investment through seamless integration with any Fibre Channel storage, switches, as well as management utilities enabling introduction of CEE/DCB and FCoE into their data centers without disrupting existing SANs or IT management practices. In addition, PowerConnect B-8000 Family supports option to deploy Ethernet only configuration with DCB ports and upgrade to converged IP and Fibre channel infrastructure with FCoE when needed.

Non-stop networking

To support disaster recovery and business continuance, PowerConnect B-8000 Family provides enterprise-class availability features such as hot-swappable, redundant fan and power supply assemblies. The switch also supports a wide range of diagnostic and monitoring functions to ensure highly-available SAN environments in enterprise data centers. For data-intensive applications, the PowerConnect B-8000 Family provides non-blocking high performance in a top-of-rack switch.

Feature	PowerConnect B-8000
System configuration	**PowerConnect B-8000e** • Ethernet and/or lossless Ethernet (DCB/CEE) deployment: in this configuration, the Dell 8000e performs in the same way standard Ethernet switches do. In other words, it can be deployed as a LAN switch • Lossless Ethernet available with 10GbE on wire speed and non-blocking 24 ports • Low price entry point with future proof upgrade capability to FC and FCoE support. **PowerConnect B-8000** • Same as above, plus FCoE capability and 8, 8bps Fibre Channel active ports
Fibre Channel ports	Eight Fibre Channel universal (E, F, M, and FL) ports with 1, 2, 4, and 8 Gbit/sec full duplex (B-8000 only)
DCB/CEE ports	24 ports with 10 Gigabit Ethernet line speed
FCoE features (B-8000 only)	Complete T11 FCoE entity and FCoE bridging The FCoE translation entity built into the hardware engine provides: • Detection of Fibre Channel encapsulation and redirection of FCoE fabric login frames • Encapsulation of Fibre Channel frames in FCoE Ethernet packets (FC > FCoE) • Extraction of Fibre Channel frames from FCoE Ethernet packets (FCoE > FC) • Mapping of Fibre Channel destination Virtual Fabrics and destination FC_ID to Ethernet Virtual LAN and destination MAC addresses Fabric-Provided MAC Addresses (FPMAs) enable new Ethernet MAC addresses to be created using the FC_ID assigned by the fabric
DCB/CEE features	Data Center Bridging eXchange (DCBX), Priority-based Flow Control (PFC) – IEEE 802.1Qbb, Enhanced Transmission Selection (ETS) – IEEE 802.1Qaz
Performance	Fibre Channel: 1, 2, 4, and 8 Gbit/sec line speed full duplex (B-8000 only), DCB/CEE: 10 GB line speed
ISL trunking	Frame-based ISL Trunking (optional license) enables up to eight ports between a pair of switches to be combined into a logical ISL with speeds of up to 64 Gbit/sec (128 Gbit/sec full duplex) for optimal bandwidth utilization and load balancing; exchange-based load balancing across ISLs with DPS (included in Fabric OS)
Link aggregation (10 Gigabit Ethernet)	Link Aggregation Control Protocol (LACP), 802.3ad standards-based, Brocade enhanced frame-based trunking
Maximum frame size	2112-byte Fibre Channel payload; 9048-byte Ethernet frame
Fibre Channel Classes	Class 2, Class 3, Class F (inter-switch frames)
Port types	FL_Port, F_Port, M_Port (Mirror Port), E_Port; self-discovery based on switch type (U_Port); optional port type control
Data traffic types	Fabric switches supporting unicast, multicast (255 groups), and broadcast
Media types	Fibre Channel media type: Hot-pluggable, industry-standard Small Form Factor Pluggable (SFP) and SFP+, LC connector; Short-Wave Laser (SWL) and Long-Wave Laser (LWL); distance depends on fiber optic cable and port speed; supports SFP+ (2, 4, and 8 Gbit/sec) and SFP (1, 2, and 4 Gbit/ sec) optical transceivers(B-8000 only) DCB/CEE media type: Hot-pluggable, Brocade 10 Gigabit Ethernet SFP+ supports any combination of Short-Reach (SR) and Long-Reach (LR) optical transceivers; Brocade copper twinax cables of one, three, or five meters
USB	One USB port for firmware download, support save, and configuration upload/download
Fibre Channel fabric services (B-8000 only)	Simple Name Server (SNS), Registered State Change Notification (RSCN), NTP, RADIUS, LDAP, Reliable Commit Service (RCS), Dynamic Path Selection (DPS), Enhanced Group Management (EGM), and Web Tools; optional fabric services include Fabric Watch, ISL Trunking, and Advanced Performance Monitoring
DCB/CEE services	Spanning Tree Protocol (STP, MSTP, RSTP), VLAN Tagging (802.1q), MAC address learning and aging; native FCoE switching; IEEE 802.3ad Link Aggregation (LACP); access control lists based on VLAN, source, destination address, and port; eight priority levels for QoS and approximately 4000 VLANs; Priority-based Flow Control (PFC); Data Center Bridging eXchange (DCBX)-Capabilities Exchange; Enhanced Transmission Selection (ETS)
Licensing options	Fabric OS includes the following optional features that can be enabled via license keys and are applicable only to the Fibre Channel ports of the PowerConnect B8000 Family: • Brocade Fibre Channel ISL Trunking • Brocade Advanced Performance Monitoring • Brocade Fabric Watch
Management	<u>Management software:</u> SSH v2, HTTP/HTTPS, SNMP v1/v3, Telnet; SNMP (FE MIB, FC Management MIB, RMON, and IF-MIB for CEE); Web Tools; Data Center Fabric Manager (DCFM) Professional and Enterprise; SMI-S; RADIUS, Management access: One 10/100/1000 Megabit Ethernet, in-band over Fibre Channel (B-8000 only), one serial port, and one USB port, <u>Diagnostics:</u> POST and embedded online/offline diagnostics, including FCping and Pathinfo (FCtraceroute)
Mechanical	Enclosure: Non-port to port side airflow; 1U, 19-inch EIA-compliant, power from non-port side, Size: Width: 42.9 cm (16.9 in); Height: 4.3 cm (1.7 in); Depth: 63.4 cm (25.0 in), System Weight: 13.0 kg (28.6 lbs) with two power supply FRUs,without transceivers
Environmental	
Temperature	Operating: 0°C to 40°C (32°F to 104°F); Non-operating: -25°C to 70°C (-13°F to 158°F)
Humidity	Operating: 10% to 85% non-condensing; Non-operating: 10% to 90% non-condensing
Altitude	Operating: Up to 3000 meters (9842 feet); Storage: Up to 12 kilometers (39,370 feet)
Shock	Operating: 20 g, 6 ms half-sine, Non-operating: Half-sine, 33 g 11 ms, 3/eg Axis
Vibration	Operating: 0.5 g sine, 0.4 grms random, 5 to 500 Hz, Non-operating: 2.0 g sine, 1.1 grms random, 5 to 500 Hz
CO_2 emissions	335 kg per year (with 40 ports at 0.42 kg/kWh); 1.05 kg per Gbit/sec per year
Airflow	Maximum: 42 CFM; Nominal (65% speed): 35 CFM
Heat dissipation	32 ports: 1044 BTU/hr
Power	Maximum: 350 watts; Consumption: 306 watts; Input Voltage: 85 to 264 VAC nominal; Input Line Frequency: 47 to 63 Hz; Inrush Current: 60 amps maximum; Maximum Current: 29 amps at 12V DC

Learn more at www.Dell.com/PowerConnect-B-Series

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