



Dell PowerConnect

B-DCX 4S Director-class Chassis Switch

The Dell™ PowerConnect™ B-DCX 4S Director is a highly robust network switching platform that combines breakthrough performance, scalability, and efficiency with long-term investment protection. Supporting open systems, the PowerConnect B-DCX 4S is designed to address the data growth and application demands of evolving enterprise data centers; enable server, SAN, and data center consolidation; and reduce infrastructure and administrative costs.

Optimized for virtual data center fabric evolution

The PowerConnect B-DCX 4S enables large-scale server virtualization and SAN consolidation through high-density, high-performance Fibre Channel/ FICON connectivity. When combined with unique local switching capabilities—data traffic within the same port group does not consume slot bandwidth—it provides high performance. The PowerConnect B-DCX 4S can provide 256 Gbps of bandwidth per slot (512 Gbps aggregate data rate). Performance capabilities include:

- 192 ports operating simultaneously at full 8 Gbps speed
- 1.5 Tbps of chassis bandwidth
- 256 Gbps of ICL bandwidth (freeing up to 32 8 Gbps ports per chassis)

The PowerConnect B-DCX 4S helps reduce device congestion as well as device latency conditions in the fabric with features like high-bandwidth traffic measurement with Top Talkers and critical traffic prioritization with Ingress Rate Limiting.

Designed for SAN Consolidation

The PowerConnect B-DCX 4S Director helps reduce server-to-storage traffic issues using highly available, lossless connectivity. It includes a Virtual Fabric feature that enables partitioning of a physical SAN into logical

fabrics and isolation by application, business group, customer, or traffic type. Optional Fibre Channel Integrated Routing alleviates the need for special-purpose blades or routers to connect servers and storage in separate fabrics. In addition, optional SAN extension over long-distance IP connections accelerates offsite replication, backup, and restore.

The PowerConnect B-DCX 4S supports 1/2/4/8/10 Gbps Fibre Channel FCIP, and IPFC. PowerConnect B-8000 top-of-rack switches can be connected over Fibre Channel Inter-Switch Links (ISLs) to the PowerConnect B-DCX 4S Director in the network core.

Efficiency for energy conscious operations

With less than one-half watt per Gbps energy consumption, the PowerConnect B-DCX 4S helps reduce power consumption, cooling, and carbon footprint in data centers while providing high performance and scalability.

B-FCoE 1024 Blade

The B-FCOE 1024 blade enables first hop direct connectivity for access layer servers to PowerConnect B-DCX 4S FC director eliminating the need for intermediate networking devices. The B-FCoE 1024 blade provides 24 10 Gbps DCB ports capable of transporting both storage (FCoE) and LAN traffic.

The Blade connects to servers through Converged Network Adapters (CNAs) and supports end-to-end FCoE through FC ISLs, allowing FCoE traffic to be carried from FCoE initiators across multiple FC ISL hops to termination in FC or FCoE storage.

Feature		Dell™ PowerConnect™ B-DCX 4S
Systems architecture		
Chassis	Single chassis: Up to 192 8 Gbps universal (E, F, FL, M, EX) Fibre Channel ports using up to eight 16-, 32-, or 48-port Fibre Channel blades Dual chassis: Up to 384 8 Gbps universal Fibre Channel ports; ICL ports (four per chassis, copper pin) connect up to three PowerConnect DCX-4S chassis	
Control processor	Redundant (active/standby) control processor modules	
Scalability	Full fabric architecture of 239 switches	
Certified maximum	6000 active nodes; 56 switches, 19 hops in Brocade FOS fabrics; 31 switches, 3 hops in Brocade M-EOS fabrics; larger fabrics certified as required	
Performance	Fibre Channel: 1.063 Gbps line speed, full duplex; 2.125 Gbps line speed, full duplex; 4.25 Gbps line speed, full duplex; 8.50 Gbps line speed, full duplex; auto sensing of 1, 2, 4, and 8Gb port speeds; optionally programmable 1, 2, 4, and 8 Gbps ports; 10.5 Gbps line speed, full duplex. CEE/DCB: 10.0 Gbps line speed, full duplex.	
ISL Trunking	Frame-based trunking with up to eight 8 Gbps ports per ISL trunk; up to 64 Gbps per ISL trunk Exchange-based load balancing across ISLs with DPS included in Fabric OS	
Chassis bandwidth	1.536 Tbps per chassis (192 ports x 8 Gbps data rate)	
Slot bandwidth	256 Gbps (data rate)	
Switch latency	Locally switched ports 700 ns; blade-to-blade latency is 2.1 µsec	
Maximum frame size	2112-byte payload	
Frame buffers	2048 per 16-port group on 16/32-port blades and up to 2048 per 24-port group on 48-port blades, dynamically allocated	
Classes of service	Class 2, Class 3, Class F (inter-switch frames)	
Fibre Channel port types	FL_Port (except FC8-48), F_Port, M_Port (Mirror Port), E_Port, EX_Port (Fibre Channel Integrated Routing); self-discovery based on switch type (U_Port); optional port type control	
Data traffic types	Fabric switches supporting unicast, multicast (255 groups), and broadcast	
USB	1 USB port per control processor for firmware download, support save, and configuration upload/download	
Fabric services	Advanced Performance Monitoring (including Top Talkers); Adaptive Networking (Ingress Rate Limiting, Traffic Isolation, QoS); BB credit recovery; Bottleneck Detection; Brocade Advanced Zoning (default zoning, port/WWN zoning, broadcast zoning); Dynamic Path Selection (DPS); Extended Fabrics; Fabric Watch; FDMI; Frame Redirection; FSPF; Integrated Routing; IPoFC; ISL Trunking; Management Server; N_Port Trunking; NPIV; NTP v3; Port Fencing; Registered State Change Notification (RSCN); Reliable Commit Service (RCS); Simple Name Server (SNS); Virtual Fabrics (Logical Switch, Logical Fabric)	
Extension	Supports DWDM, CWDM, and FC-SONET devices; FCIP, data compression, Fast Write, Tape Write and Read Pipelining, QoS, BB credit recovery	
High availability		
Architecture	Passive backplane; separate and redundant control processor and core switching blades (two of each); redundant WWN cards	
Chassis power	Two 2000 W AC power supply modules (100 to 240 V auto-sensing), 2N redundancy; PowerConnect B-DCX 4S supports two additional power modules	
Cooling	Two blower assembly modules (one required for operation)	
Solution availability	Designed to provide 99.999 percent uptime capabilities; hot-pluggable redundant power supplies, fans, WWN cards, processors, core switching, port blades, and optics; online diagnostics; non-disruptive firmware download and activation	
Management		
Management	HTTP, SNMP v1/v3 (FE MIB, FC Management MIB), Telnet; Auditing, Syslog; Brocade Advanced Web Tools, Brocade Fabric Watch; Brocade Data Center Fabric Manager (DCFM) Enterprise or DCFM Professional/Professional Plus, Brocade Fabric Manager (optional, FOS environments only), Brocade EFCM 9.x (optional), command line interface; SMI-S compliant; Administrative Domains; trial licenses for add-on capabilities	
Security	DH-CHAP (between switches and end devices), FIPS 140-2 L2-compliant, HTTPS, IPsec, IP filtering, LDAP, Port Binding, RADIUS, Role-Based Access Control (RBAC), Secure Copy (SCP), Secure RPC, SSH v2, SSL, Switch Binding, Trusted Switch	
Management access	10/100/1000 Ethernet (RJ-45) per control processor, in-band over Fibre Channel; serial port (RJ-45) and one USB per control processor module; call-home integration enabled through Brocade DCFM, EFCM, and Fabric Manager	
Diagnostics	POST and embedded online/offline diagnostics, including RAStace logging, environmental monitoring, non-disruptive daemon restart, FCping and Pathinfo (FC traceroute), port mirroring (SPAN port)	
Mechanical specifications		
Enclosure	Rear panel-to-door airflow; PowerConnect B-DCX 4S ships with 1U exhaust shelf	

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