

The Foundation of the Data Center is Not on it’s Way. It’s Here.

TRANSFORMING YOUR INFORMATION INFRASTRUCTURE FOR BUSINESS ADVANTAGE

Enterprise data center worldwide leaders, EMC and Brocade are teaming to create the data center of the future which enables you to:

Innovate for business advantage to help accelerate your growth and to improve your competitive position:

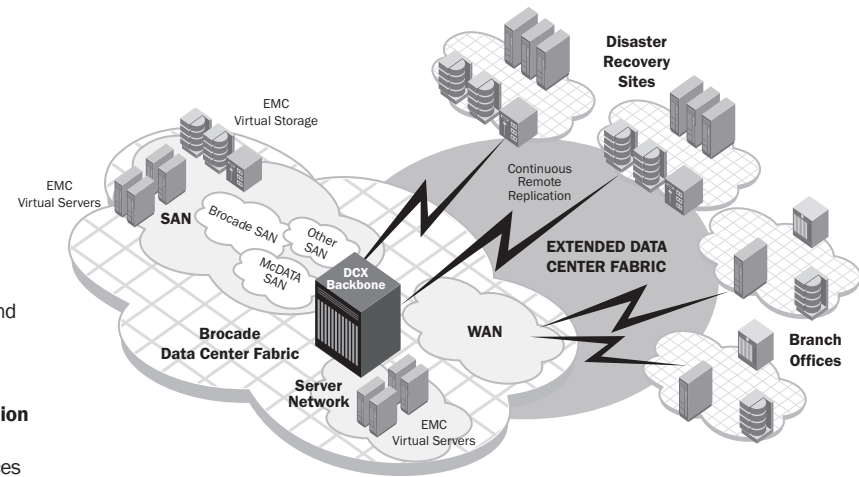
- Industry-leading technology with new levels of performance
- Reduced Total Cost of Ownership (TCO)
- Infrastructure investment protection while integrating new technologies

Manage information growth, complexity and risk to respond more effectively to business change:

- Infrastructure flexibility with scalability and openness
- Unified management framework to manage consolidated and virtualized resources
- Infrastructure resiliency, high availability and security

Go green and save to improve the return on your information infrastructure investments:

- Consolidating server, storage and data center fabric resources
- Virtualizing servers, storage and data center fabric resources
- Providing tiered storage to match storage investments to the business value of data
- Improving energy efficiency of server, storage and fabric resources



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CONNECTRIX
PRODUCT REFERENCE GUIDE



DCX Backbone and Enterprise Directors

	DCX BACKBONE		DIRECTORS
	ED-DCX-B	ED-DCX-4S-B	ED-48000B
			
BROCADE MODEL	DCX Backbone	DCX-4S Backbone	48000 Director
PORTS	Up to 384 per Chassis, 768 in two Chassis with ICL kit	Up to 192 per Chassis, 384 in two Chassis with ICL kit	Up to 384
PORT SPEED	2, 4, 8, 10 Gbps	2, 4, 8, 10 Gbps	1, 2, 4, 8, 10 Gbps
PORT BLADE OPTIONS	PB-DCX-16P-8G: 16 Ports @ 8Gb with 8Gb SFP PB-DCX-32P-8G: 32 Ports @ 8Gb with 8Gb SFP PB-DCX-48P-8G: 48 Ports @ 8Gb with 8Gb SFP PB-DCX-16P-E: 16 Ports @ 8Gb with no SFP PB-DCX-32P-E: 32 Ports @ 8Gb with no SFP PB-DCX-48P-E: 48 Ports @ 8Gb with no SFP PB-48K-18i: 16 Ports FC + 2Gbe for FCIP PB-48K-10G-6: 6 Ports @ 10Gb with 10G XFP PB-48K-AP4-18: FAP for Invista and RecoverPoint PB-DCX-16EB: Encryption Blade PB-DCX-FX8-24: 12 ports 8G FC + 10 1GbE for FCIP	PB-DCX-16P-8G: 16 Ports @ 8Gb with 8Gb SFP PB-DCX-32P-8G: 32 Ports @ 8Gb with 8Gb SFP PB-DCX-48P-8G: 48 Ports @ 8Gb with 8Gb SFP PB-DCX-16P-E: 16 Ports @ 8Gb with no SFP PB-DCX-32P-E: 32 Ports @ 8Gb with no SFP PB-DCX-48P-E: 48 Ports @ 8Gb with no SFP PB-48K-18i: 16 Ports FC + 2Gbe for FCIP PB-48K-10G-6: 6 Ports @ 10Gb with 10G XFP PB-48K-AP4-18: FAP for Invista and RecoverPoint PB-DCX-16EB: Encryption Blade PB-DCX-FX8-24: 12 ports 8G FC + 10 1GbE for FCIP	PB-DCX-16P-8G: 16 Ports @ 8Gb with 8Gb SFP PB-DCX-32P-8G: 32 Ports @ 8Gb with 8Gb SFP PB-DCX-48P-8G: 48 Ports @ 8Gb with 8Gb SFP PB-DCX-16P-E: 16 Ports @ 8Gb with no SFP PB-DCX-32P-E: 32 Ports @ 8Gb with no SFP PB-DCX-48P-E: 48 Ports @ 8Gb with no SFP PB-48K-18i: 16 Ports @ 4Gb with SFP PB-48K-10G-32: 32 ports @ 4Gb with SFP PB-48K-48: 48 Ports @ 4Gb with SFP PB-48K-18i: 16 ports FC + 2Gbe for FCIP PB-48K-10G-6: 6 Ports @ 10Gb PB-48K-AP4-18: FAP for Invista and RecoverPoint PB-48K-16i: ISCSI (8 FC Ports at 4Gb and 8 IP)
INCLUDED LICENSES	Web Tools, Advanced Zoning, Full Fabric, IPSEC, Enterprise Bundle (Extended Fabric, Server Application Optimization, Fabric Watch, Advanced Performance Monitoring, and Trunking) Enhanced Group Management	Web Tools, Advanced Zoning, Full Fabric, IPSEC, Enterprise Bundle (Extended Fabric, Server Application Optimization, Fabric Watch, Advanced Performance Monitoring, and Trunking) Enhanced Group Management	Web Tools, Advanced Zoning, Full Fabric, IPSEC, Enhanced Group Management
OPTIONAL LICENSES	DCX-FCIP-LIC: High Performance Extension DCX-CUP-LIC: FICON CUP DCX-ICL-KIT: Inter-Chassis Link License and Cables ED-DCX-B-IR: Integrated Routing License for DCX DCX-16EB48G: 48G Encryption BW Upg License FX8-24-ADVEXT: Advanced Extension License Per Blade FX8-24-10GbE: 2 port 10GbE License Per Blade	DCX-FCIP-LIC: High Performance Extension DCX-4S-FIC-CUP: FICON CUP DCX-4S-ICL-KIT: Inter-Chassis Link License and Cables ED-DCX-4S-IR: Integrated Routing License for DCX DCX-16EB48G: 48G Encryption BW Upg License FX8-24-ADVEXT: Advanced Extension License Per Blade FX8-24-10GbE: 2 port 10GbE License Per Blade	SW-48000B-FW: Fabric Watch SW-48000B-TR: Trunking SW-48000B-PM: Performance Monitoring SW-48000B-XF: Extended Fabrics SW-48000B-CU: FICON CUP SW-48000B-IP: FCIP (req PB-48K-18i) SW-48000B-ENT: Enterprise Bundle (Enhanced Group Management, Extended Fabric, Server Application Optimization, Fabric Watch, Advanced Performance Monitoring, and Trunking)
POWER	2 Hot Plug PS, 2 Slots for Expansion	2 Hot Plug PS, 2 Slots for Expansion	4 Hot Plug PS

Connectrix Manager Data Center Edition








EM-1010-ENT	Connectrix Manager 10.x Data Center Edition – Enterprise
EM-1010-PLUS	Connectrix Manager 10.x Data Center Edition – Pro Plus
EM1010PLUSUPG	Connectrix Manager 10.x Data Center Edition – Pro Plus to Enterprise Upgrade

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Storage Area Networks (SAN) 8Gb, Application and Router Switches

	8GB FAMILY OF SWITCHES			APPLICATION AND ROUTER SWITCHES		ENCRYPTION FOR DATA AT REST	FCoCEE CONVERGENCE
EMC MODEL	DS-300B-8G	DS-5100B-8G	DS-5300B-8G	AP-7600B	MP-7800B	ES-5832B	MP-8000B
							
BROCADE MODEL	300	5100	5300	7600	7800	BES	8000
PORT SPEED	2, 4, 8 Gbps	2, 4, 8 Gbps	2, 4, 8 Gbps	1, 2, 4 Gbps	2,4,8 Gbps FC, 1 Gbe	2, 4, 8 Gbps	2, 4, 8 Gb FC, 10Gbe CEE
PORTS IN BASE	8/24	24/40	48/80	16 FC, 2 Gbe	4 FC, 2 Gbe	32FC, 2 Gbe, 48Gb/sec Encryption	8 FC; 24 CEE
PORT RANGE	8-24	24-40	48-80	16 + 2	16 + 6	32 + 2	8 + 24
SFP IN BASE	8	24	48	16	4	32	8 x FC
POD INCREMENT	8	8	16	N/A	12 FC and 4 Gbe	N/A	N/A
POD KIT (INCLUDES LICENSE AND SFP)	With 4Gb SFP DS300B-4G8PU With 8Gb SFP DS300B-8G8PU	With 4Gb SFP DS5100B-4G8PU With 8Gb SFP DS5100B-8G8PU	With 4Gb DS5300B-4G16PU With 8Gb DS5300B-8G16PU	N/A	With 8Gb SFP MP7800B-ENTFC	N/A	N/A
INCLUDED LICENSES	Web Tools, Advanced Zoning, Full Fabric, Enhanced Group Management	Web Tools, Advanced Zoning, Full Fabric, Enhanced Group Management	Web Tools, Advanced Zoning, Full Fabric, Enhanced Group Management	SAS, Extended Fabrics, Web Tools, Advanced Zoning, Full Fabric	Web Tools, Advanced Zoning, Full Fabric	Web Tools, Advanced Zoning, Full Fabric	Web Tools, Advanced Zoning, Full Fabric, Enhanced Group Management, FCoE, FC POD
EP MODELS ALSO INCLUDE	The DS-300B-EP model Includes: all 24 ports enabled, all 8GB SW SFP's as well as the Enterprise Bundle License	The DS-5100B-EP model Includes: all 40 ports enabled, all 8GB SW SFP's as well as the Enterprise Bundle License	The DS-5300B-EP model Includes: all 80 ports enabled, all 8GB SW SFP's as well as the Enterprise Bundle License	N/A	N/A	N/A	N/A
ENTERPRISE BUNDLE (Fabric Watch, Trunking, Performance Monitoring, Extended Fabric, Server Application Optimization)	DS-300B-ENT	DS-5100B-ENT	DS-5300B-ENT	N/A	MP-7800B-ENT	ES-5832B-ENT	N/A
PLATFORM SPECIFIC LICENSE	N/A	N/A	N/A	N/A	MP-7800B-ADVX Advanced Extension License	ES5832B-48GBW: Full 96Gb Encryption Bandwidth Upgrade License	N/A
FABRIC WATCH	DS-300B-FW	DS-5100B-FW	DS-5300B-FW	AP7600B-FW	MP-7800B-FW	ES-5832B-FW	MP-8000B-FW
TRUNKING	DS-300B-TR	DS-5100B-TR	DS-5300B-TR	AP7600B-TR	MP-7800B-TR	ES-5832B-TR	MP-8000B-TR
PERFORMANCE MONITORING	DS-300B-PM	DS-5100B-PM	DS-5300B-PM	AP7600B-PM	MP-7800B-PM	ES-5832B-PM	MP-8000B-PM
EXTENDED FABRIC	DS-300B-XF	DS-5100B-XF	DS-5300B-XF	Bundled	Bundled	ES-5832B-XF	N/A
FICON CUP	N/A	DS-5100B-CU	DS-5300B-CU	N/A	MP-7800B-FIC	N/A	N/A
ADAPTIVE NETWORKING	DS-300B-AN	DS-5100B-AN	DS-5300B-AN	N/A	MP-7800B-AN	ES-5832B-AN	N/A
INTEGRATED ROUTING	N/A	DS-5100B-IR	DS-5300B-IR	N/A	MP-7800B-IR	ES-5832B-IR	N/A
SUPPORTED APPLICATIONS	N/A	N/A	N/A	RecoverPoint, Invista	N/A	RSA Key Mananger Appliance	N/A

RAIL KITS	OPTICAL TRANSCEIVERS	10GBE TWINAX CABLES	10GBE SFPs
EC1500BRLKT: Order for mounting into an existing EC-1500-B or EC-1700-B ED-12000B-CNV: Order for mounting into a customer-supplied cabinet or rack DSB2RK40: Factory installed fixed length mounting kit for DS-300B, DS-5100B, DS-5300B, AP-7600B, MP-7800B & ES-5832B switches in a Clariion cabinet DSBRK40-FD-B: Field installed adjustable length mounting kit for DS-300B, DS-5100B, DS-5300B, AP-7600B, MP-7800B & ES-5832B switches in a Clariion and non-Clariion cabinet DSBRLKT-B: Rail kit for DS-300B, DS-5100B, DS-5300B, MP-7800B & ES-5832B switches into third party racks	BRSFP-4GSW 4GB SHORT WAVE SFP BRSFP-4G4KLW 4GB 4KM LONG WAVE SFP BRSFP-4G10KLW 4GB 10KM LONG WAVE SFP BRSFP-4G30KLW 4GB 30KM LONG WAVE SFP BRSFP-8GSW 8GB SHORT WAVE SFP BRSFP-8GSW8P 8GB SHORT WAVE SFPs 8PACK BRSFP-4GSW8P 4GB SHORT WAVE SFPs 8PACK BRSFP-4GSW128 4GB SHORT WAVE SFPs 128PACK BRSFP-8GSW128 8GB SHORT WAVE SFPs 128PACK BRSFP-8G10KLW 8GB 10KM LONG WAVE SFP BRSFP-8G10K8P 8GB 10KM LONG WAVE SFPs 8PACK BRSFP-1GECOPR BRCD LBL 1GbE Copper SFP	BRSFP-TX1M1P: 10GbE TWINAX CABLE COPPER 1M 1PACK BRSFP-TX1M8P: 10GbE TWINAX CABLE COPPER 1M 8PACK BRSFP-TX3M1P: 10GbE TWINAX CABLE COPPER 3M 1PACK BRSFP-TX3M8P: 10GbE TWINAX CABLE COPPER 3M 8PACK BRSFP-TX5M1P: 10GbE TWINAX CABLE COPPER 5M 1PACK BRSFP-TX5M8P: 10GbE TWINAX CABLE COPPER 5M 8PACK	BRSFP-10GSW1P: 10GbE SFP+ SHORT WAVE 1PACK BRSFP-10GSW8P: 10GbE SFP+ SHORT WAVE 8PACK BRSFP-10G10K: 10GbE SFP+ 10K LONG WAVE 1PACK BRSFP-10G10K8: 10GbE SFP+ 10K LONG WAVE 8PACK

SAN HBAs and CNAs

	HBA				CEE CNA
MODEL	BROCADE 400 SERIES		BROCADE 800 SERIES		Brocade 1020 (Dual-Port) CNA
					
SELECT MODEL NUMBERS	EM-415-0010	EM-425-0010	EM-815-0010	EM-825-0010	EM-1010, EM-1010C, EM-1020, EM-1020C
PORT SPEED	1, 2, 4 Gbps	1, 2, 4 Gbps	2, 4, 8 Gbps	2, 4, 8 Gbps	10 Gbps
PORTS	1	2	1	2	2
IOPS	Up to 500K Per Port (Max)				
BUS TYPE	PCIe 2.0				PCIe 2.0 x 8
SUPPORTED OPERATING SYSTEMS	Windows 2003 Windows 2008 Red Hat Linux RHEL 4.7 & 5.2 SuSE Linux SLES 9 SP4 VMware ESX Server 3.5 VMware ESX Server 3i				Windows, Linux, VMWare

OUR OPPORTUNITY TOGETHER
EMC now offers Brocade-E HBAs through EMC Select, extending Brocade’s Advanced Fabric Services to compliment EMC solutions. Along with our industry leading fabric offerings, you now have the ability to provide true end-to-end host and fabric solutions to your customers; while engaging with the same Brocade field team that you work with today on all Brocade Connectrix opportunities.

EMC SUPPORT MATRIX LISTING OF BROCADE HBAS
Brocade’s HBAs were announced on the EMC Support Matrix (ESM) in December, 2008. While supported configurations will continue to expand, if you’re customer’s environment is not reflected in ESM, E-lab is supportive of reviewing and accepting RPQs to support additional configurations on a deal-by-deal basis.

- 1

Greatest Performance and Scalability
Each 4 Gbps or 8 Gbps port has a maximum I/O transfer rate up to 500,000 IOPS/port, more than twice that offered by other HBA suppliers!
- 2

Simplified Software
Brocade HBA firmware is bundled as part of the driver package, thus avoiding any potential driver/firmware mismatch issues.
- 3

Removable Optics
Most HBA hardware failures are optics related, that’s why Brocade supports the simple installation/removal of our HBA SFPs, enabling quicker issue resolution and improved up time.
- 4

Full Server Virtualization
Brocade offers end-to-end Quality of Service (QoS) and extends it all the way to a server’s virtual machine (VM) level, maximizing fabric efficiencies and physical server consolidation.
- 5

Greatest Performance and Scalability
Simplified fabric and host management via Brocade’s Data Center Fabric Manager (DCFM) management tool, a single pane-of-glass end-to-end management and diagnostic tool.