BROCADE 4×16 GBPS SWL FIBER CHANNEL-COMPLIANT QSFP OPTICAL TRANSCEIVER

STORAGE AREA NETWORK

Optimized, Certified Optical Transceivers for the Highest-Performance Data Center Fabrics

HIGHLIGHTS

- Provides high system reliability through rigorous qualification and certification processes
- Leverages unique design parameters to provide the highest performance with industry-leading Brocade switch and backbone platforms
- Reduces downtime and support costs by helping eliminate issues related to transceiver incompatibility
- Provides ongoing end-to-end compatibility by helping eliminate issues resulting from unexpected design changes
- Optimizes connectivity with Brocade platforms to enable maximum cable distance
- Required by the FC16-64 port blade for the Brocade DCX 8510 Backbone

Today's enterprise data centers are undergoing an infrastructure transformation, requiring higher speeds, greater scalability, and higher levels of performance and reliability to better meet the demands of business. As speed and performance needs increase, optical transceivers—once considered a generic component of Fibre Channel switching technologies—have become an integral part of overall system design. However, optical transceiver design margins and parameters vary widely, and can be the difference between an optimized, highly reliable fabric and incompatibility issues that drive up support costs.

Brocade® 4×16 Gbps Short Wavelength (SWL) FC-Compliant Quad Small Form-Factor Pluggable (QSFP) Optical Transceivers, part of the Brocade family of optical transceivers, are optimized to fully leverage Brocade 16 Gbps backbone and switch products. Together, these optical transceivers provide state-of-the-art performance, helping IT organizations achieve new levels of infrastructure consolidation while expanding the capabilities of their applications and services.

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END-TO-END COMPATIBILITY AND RELIABILITY

Brocade 4×16 Gbps SWL Fiber Channel-Compliant QSFP Optical Transceivers support highly reliable operations in data center fabrics and are optimized for Brocade 16 Gbps switching platforms. They undergo rigorous qualification and certification testing that results in an end-to-end solution that is easier to maintain—helping to improve the availability of data center fabrics supporting mission-critical applications.

KEY FEATURES

Brocade 4×16 Gbps SWL Fibre Channel-Compliant QSFP Optical Transceivers are hot-swappable, low-voltage (3.3 V) digital diagnostic optical transceivers that support high-speed serial links over multimode optical fiber at signaling rates up to 14.025 Gbps. They comply with the QSFP MSA mechanical specification (SFF-8436).

Brocade 4×16 Gbps SWL Fibre Channel-Compliant QSFP Optical Transceivers are tri-rated 850 nm QSFPs that comply with 14.025 Gbps Fibre Channel specifications, and compatible with 8.5 Gbps and 4.25 Gbps Fibre Channel specifications. Product highlights include:

- 850 nm multimode VCSEL transmitter
- Diagnostic features per SFF-8472 "Diagnostic Monitoring Interface for Optical Transceivers," providing real-time monitoring of:
  - Transmitted optical power
  - Received optical power
  - Laser bias current
  - Temperature
  - Supply voltage

- Industry-standard MTP 1×12 ribbon cable connector
- 66 m link length on OM3 fiber, 100 m link length on OM4 fiber
- IEC 60825-1 Class 1/CDRH Class 1 laser (eye-safe)
- Compliance with Restriction on Hazardous Substances (RoHS) directive
- Provides optical breakout capability to 4×16 Gbps Fibre Channel SFP+, 4×8 Gbps Fibre Channel SFP+, or 4×4 Gbps Fibre Channel SFP transceivers at the opposite ends of a link using optical breakout cables
- Yellow pull-tab for easy extraction
- Required by the FC16-64 port blade for the Brocade DCX 8510 Backbone

FAMILY OF OPTICAL TRANSCEIVERS

Brocade offers a comprehensive family of 4 Gbps, 8 Gbps, 10 Gbps, and 16 Gbps SFPs to provide highly compatible, high-performance connectivity to Brocade backbone and switch products.

For additional ordering information, contact a Brocade representative or visit www.brocade.com/howtobuy.

BROCADE GLOBAL SERVICES

Brocade Global Services has the expertise to help organizations build scalable, efficient cloud infrastructures. Leveraging over 15 years of expertise in storage, networking, and virtualization, Brocade Global Services delivers world-class professional services, technical support, network monitoring services, and education, enabling organizations to maximize their Brocade investments, accelerate new technology deployments, and optimize the performance of networking infrastructures.

CLOUD-OPTIMIZED NETWORK ACQUISITION

Brocade helps organizations easily address their information technology requirements by offering flexible network acquisition and support alternatives to meet their financial needs. Organizations can select from purchase, lease, and Brocade Network Subscription options to align network acquisition with their unique capital requirements and risk profiles. To learn more, visit www.Brocade.com/CapitalSolutions.

MAXIMIZING INVESTMENTS

To help optimize technology investments, Brocade and its partners offer complete solutions that include professional services, technical support, and education. For more information, contact a Brocade sales partner or visit www.brocade.com.

BROCADE 4×16 GBPS SWL FIBRE CHANNEL-COMPLIANT QSFP OPTICAL TRANSCEIVER SPECIFICATIONS

Systems	
Performance	Fibre Channel: 4×14.025 Gbps line speed, full duplex, tri-speed (4×14.025 Gbps, 4×8.5 Gbps, and 4×4.25 Gbps)
Media	Hot-pluggable, industry-standard QSFP, MTP 1×12 ribbon cable connector; SWL
Operating parameters	Transmit (Tx): Wavelength: 840 to 860 nm Spectral width: 0.50 nm Average power: 1 dBm max per channel RIN: −128 dB/Hz max Optical return loss: 12 dB max OMA: −3.0 dBm min per channel Receive (Rx): Wavelength: 840 to 860 nm Average power: 2.4 dBm max per channel Optical return loss: −12 dB min SRS OMA: −10 dBm max per channel 3 dB cutoff maximum: 18 GHz
Operating distances	OM3 50μm 4 Gbps Fibre Channel: 380 m 8 Gbps Fibre Channel: 150 m 16 Gbps Fibre Channel: 66 m OM4 50μm 4 GbpsFibre Channel: 400 m 8 Gbps Fibre Channel: 190 m 16 Gbps Fibre Channel: 100 m
Mechanicals	
Size	Width: 18.35 mm (0.72 in.) Height: 12.90 mm (0.51 in.) Depth excluding yellow pull-tab: 68.00 mm (2.68 in.) Depth including yellow pull-tab: 132.00 mm (5.20 in.)
Environmentals	
Storage temperature	−40°C to 85°C (−40°F to 185°F)
Power	
Power dissipation	1.5 W

BROCADE 4×16 GBPS SWL FIBRE CHANNEL-COMPLIANT QSFP OPTICAL TRANSCEIVER ORDERING INFORMATION

XBR-000245	QSFP, SWL, 4×16 Gbps Fibre Channel, Fibre Channel-compliant, 66 m on OM3 multimode fiber, 100 m on OM4 multimode fiber

Regulatory and Standards Compliance
- North America: UL/CSA 60950, CDRH Class 1
- European Union: EN 60950, EN 60825 Class 1

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Caution:
- *Do not look through the optical ports, as it is a potential eye hazard.*
- *SFP is an ESD sensitivity Class 2 device, and should be handled accordingly.*

For information related to SFF Committee documentation, visit www.sffcommittee.org.

For information about supported SAN standards, visit www.brocade.com/sanstandards.

For information about switch and device interoperability, visit www.brocade.com/interoperability.

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