BROCADE 8 GBIT/SEC SWL 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, director, and backbone platforms
- Helps eliminate issues related to SFP incompatibility, reducing downtime and support costs
- Helps eliminate issues resulting from unexpected design changes, providing ongoing end-to-end compatibility
- Optimizes connectivity with Brocade platforms to enable maximum cable distance

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.

The Brocade® 8 Gbit/sec Short Wavelength (SWL) optical transceiver, part of the Brocade family of Small Form-Factor Pluggable (SFP) optical transceivers, is optimized to fully leverage Brocade 8 Gbit/sec backbone, director, 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.

END-TO-END COMPATIBILITY AND RELIABILITY

Brocade 8 Gbit/sec SWL optical transceivers support highly reliable operations in data center fabrics and are optimized for Brocade 8 Gbit/sec switching platforms. They undergo rigorous qualification and certification testing that results in an end-to-end solution that is easier to maintain—helping improve the availability of data center fabrics supporting mission-critical applications.

KEY FEATURES

Brocade 8 Gbit/sec SWL SFPs 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 8.5 Gbit/sec. They comply with SFP+ mechanical (SFF-8432), optical, and electrical specifications (FC-PI-4) for LC duplex transceivers.

The Brocade 8 Gbit/sec SWL optical transceiver is a multi-rated 850 nm SFP that complies with 8.5/4.25/2.125 Gbit/sec Fibre Channel specifications.

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Product highlights include:

- 850 nm multimode VCSEL transmitter
- FC-PI-4 compliance for 8.5/4.25/2.125 Gbit/sec operation
- 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 LC duplex connector
- 150 m link lengths at 8.5 Gbit/sec on OM3 fiber
- IEC 60825-1 Class 1/CDRH Class 1 laser eye safe
- Compliance with Restriction on Hazardous Substances (RoHS) directive

FAMILY OF OPTICAL TRANSCEIVERS

Brocade offers a comprehensive family of 4 Gbit/sec and 8 Gbit/sec SFPs to provide highly compatible, high-performance connectivity to Brocade backbone, director, and switch products.

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

MAXIMIZING INVESTMENTS

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

BROCADE 8 GBIT/SEC SWL SPECIFICATIONS

Systems	
Performance	Fibre Channel: 2.125, 4.250, and 8.5 Gbit/sec line speed, full duplex; auto-sensing of 2, 4, and 8 Gbit/sec port speeds
Media	Hot-pluggable, industry-standard Small Form-Factor Pluggable (SFP+), LC connector; Short Wavelength (SWL)
Operating parameters	Transmit (Tx): Wavelength: 840 to 860 nm Spectral width: 0.65 nm Average power: -8 dBm RIN: -128 dB/Hz max Optical return loss: -12 dB minimum OMA: 302 µW, -5.2 dBm Receive (Rx): Wavelength: 770 to 860 nm Average power: 0 dBm Optical return loss: -12 dB Unstressed sensitivity: 76 µW, -11.2 dBm SRS OMA: 148 µW, -8.3 dBm 3 dB cutoff maximum: 12 GHz

Operating distances	OM1 62.5 µm (200-500 MHz*km)	Distance	Loss
	2 Gbit/sec Fibre Channel	0.5 to 150 m	2.10 dB
	4 Gbit/sec Fibre Channel	0.5 to 70 m	1.78 dB
	8 Gbit/sec Fibre Channel	0.5 to 21 m	1.58 dB
	OM2 50 µm (500 MHz*km)	**Distance**	**Loss**
	2 Gbit/sec Fibre Channel	0.5 to 300 m	2.62 dB
	4 Gbit/sec Fibre Channel	0.5 to 150 m	2.06 dB
	8 Gbit/sec Fibre Channel	0.5 to 50 m	1.68 dB
	OM3 50 µm (1500 MHz*km)	**Distance**	**Loss**
	2 Gbit/sec Fibre Channel	0.5 to 500 m	3.31 dB
	4 Gbit/sec Fibre Channel	0.5 to 380 m	2.88 dB
	8 Gbit/sec Fibre Channel	0.5 to 150 m	2.04 dB

Mechanicals	
Size	Width: 14.00 mm (0.55 inches) Height: 12.40 mm (0.49 inches) Depth: 57.50 mm (2.26 inches)
Environmentals	
Storage temperature	-40°C to 85°C
Power	
Power dissipation	0.8 W

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.

Regulatory and Standards Compliance

- North America: UL/CSA 60950, CDRH Class 1
- European Union: EN 60590, EN 60825 Class 1

Caution:

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

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