OVERVIEW SFP+ TRANSCEIVERS

Electrical, optical transceivers for services between 600Mbps and 14Gbps

			SFP+ Transceivers																												
		Technology	Grey												CWDM				DWDM						BiDi				DAC		
		Main application	Eth			Multi-purpose						8G FC		16G FC		Multi-purpose				Multi-purpose						Multi-purpose				Eth + FC		
		Part number	SO-SFP-10GE-T	SO-SFP-1G-10G-SR	SO-SFP-1G-10G-LR	SO-SFP-10GE-SR	SO-SFP-10GE-LRM	SO-SFP-10GE-LR	SO-SFP-10GE-LR20	SO-SFP-10GE-ER	SO-SFP-10GE-ZR	SO-SFP-8GFC-SD	SO-SFP-8GFC-L10D	SO-SFP-16GFC-SD	SO-SFP-16GFC-LD	SO-SFP-10GE-LR10-Cxx	SO-SFP-10GE-LR40-Cxx	SO-SFP-10GE-ER-Cxx	SO-SFP-10GE-ZR-Cxx	SO-SFP-10GE-ER-Dxxxx	SO-SFP-10GE-ZR-Dxxxx	SO-SFP-10GE-ER-50G-Dxxxx	SO-SFP-10GE-ZR-50G-Dxxxx	SO-TSFP-10G-ZR-DWDM	SO-TSFP-10G-ZR-DWDM-I	SO-SFP-10GE-BX10D-2733/1330	SO-SFP-10GE-BX20D-2733/1330	SO-SFP-10GE-BX40D-2733/1330	SO-SFP-10GE-BX60D-2733/1330	SO-SFP-10GE-ACUxM	SO-SFP-10GE-CUxM	SO-SFP-10GE-AOCxM
Transm. media		Electrical	x																										x	x	
		Multimode		x		x	x					x		x																	x
		Singlemode			x			x	x	x	x		x		x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Connector (nbr of)		RJ45	1																												
		LC		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1			
		MPO/MPT																													
		SFP+																											2	2	2
Channel count		1	x	x	x	x	x	x	x	x	x	x	x	x	x											x	x			x	x	x
		8																x	x												
		18														x	x														
		40																		x	x										
		80																				x	x								
		96																						x	x						
		Tunable																						x	x						
Typical reach		7m																											x		
		10m																												x	
		30m	x																												
		100m												x																	x
		220m					x																								
		300m		x		x						x																			
		10km			x			x					x		x	x										x					
		20km							x																		x				
		40km								x							x	x		x		x						x			
		60km																										x			
		70km																	x												
		80km									x										x		x	x	x						
Protocols	Eth	10GbE-LAN	x	x	x	x	x	x	x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
		10GbE-WAN		x	x	x	x	x	x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x			
		GbE	x	x	x	x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x		x	x	x	x	x	x		
		FE	x																												
	OTN	OTU2				x	x	x	x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x			
		OTU2e				x	x	x	x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x			
		OTU1				x	x	x	x	x	x					x	x	x	x	x	x	x	x		x	x	x	x	x			
	SDH/SONET	STM-64/OC-192		x	x	x	x	x	x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x			
		STM-16/OC-48				x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x		x	x	x	x	x			
		STM-4/OC-12				x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x			x	x	x	x			
	SAN	16G FC												x	x																	
		10G FC				x	x	x	x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
		8G FC				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
		4G FC				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
		1G FC				x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x			x	x	x	x	x	x		
	CPRI	Opt 1 (0.6144 Gbps)				x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x		x	x	x	x	x			
		Opt 2 (1.2288 Gbps)				x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x		x	x	x	x	x			
		Opt 3 (2.4576 Gbps)				x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x		x	x	x	x	x			
		Opt 4 (3.0720 Gbps)				x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x		x	x	x	x	x			
		Opt 5 (4.9152 Gbps)				x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x		x	x	x	x	x			
		Opt 6 (6.1440 Gbps)				x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x		x	x	x	x	x			
		Opt 7 (9.8304 Gbps)				x	x	x	x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x			
		Opt 7A (8.11008 Gbps)				x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x		x	x	x	x	x			
		Opt 8 (10.1376 Gbps)				x	x	x	x	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x			
	OBSAI	1x (0.768 Gbps)				x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x			x	x	x	x			
		2x (1.536 Gbps)				x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x		x	x	x	x	x			
		4x (3.0720 Gbps)				x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x		x	x	x	x	x			
		8x (6.1440 Gbps)				x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x		x	x	x	x	x			
I-temp (-40 to +85°C)						x		x	x	x	x							x	x	x	x	x		x	x	x	x	x			

SAN TRANSCEIVERS APPROVED BY BROCADE/CISCO

		SFP+ Transceivers SAN Applications												
	SAN Equipment	Brocade approved							Cisco approved					
	Application	G	C	DWDM					Grey		CWDM		DWDM	
	Part number	16G-ER-BR2	8G-ZR-Cxx-BR1	32G-IR-Dxxx-BR	16G-ER-Dxxx-BR2	16G-ER-Dxxx-BR1	8G-ER-Dxxx-BR1	8G-ZR-Dxxx-BR1	DS-16G-ER	DS-8G-ZR	DS-16G-ER-Cxx	DS-8G-ZR-Cxx	DS-16G-ER-Dxxxx	DS-8G-ZR-Dxxxx
Transm. media	Singlemode	x	x	x	x	x	x	x	x	x	x	x	x	x
Connectors	LC	2	2	2	2	2	2	2	2	2	2	2	2	2
Channel count	1	x							x	x				
	8		x								x	x		
	41			x	x	x	x	x					x	x
	81													
Typical reach	10km			x										
	40km	x			x	x	x		x		x		x	
	70km		x									x		
	80km							x		x				x
Protocols SAN	32G FC			x										
	16G FC	x		x	x	x			x		x		x	
	10G FC													
	8G FC	x	x	x	x	x	x	x	x	x	x	x	x	x
	4G FC	x	x		x	x	x	x	x	x	x	x	x	x
	2G FC		x				x	x		x		x		x
	1G FC													

DEFINITIONS

Transm. Media:	Type of transmission media. Electrical: Connection is made over LAN cable or coax cable. Multimode: Connection is made over multimode fiber cable. Singlemode: Connection is made over singlemode fiber cable.
Channel count:	Number of services carried. Client to client connections are typically 1 channel. For CWDM and DWDM transceivers the number indicates number of available wavelength versions.
Cable type:	Ribbon-fiber: Optical cable with multiple fibers and MPO (Multi-fiber Push On) connectors. Fiber-pair: One fiber used for transmit and one fiber for receive direction. Single-fiber: One fiber used for both transmit and receive direction. Breakout cable: Special cable to separate individual flows contained in one connector to individual connectors. Can be optical or electrical.
Connector:	Optical transceivers have one or two optical connectors, e.g. LC. Cable solutions have connectors of a transceiver form-factor, e.g. SFP+.
Typical reach:	The nominal bridgeable distance. For optical transceivers the value is without optical path penalties, e.g. chromatic dispersion. For cable solutions where multiple distance options exist, the given distance is the max length.
Protocols:	Protocols supported by the transceiver/cable.
i/f standards:	Indicates if a product complies with an interface standard.
I-temp:	The product is available in a version that supports the Industrial temperature range (-40 to +85ºC). The normal temperature range is 0 to +70ºC.
E-temp:	The product is available in a version that supports extended temperature range. There is no standard for the supported temperature range. The normal temperature range is 0 to +70ºC.
FEC required:	Some protocols require Forward Error Correction to provide transmission with required quality. This is an informative remark since this is stipulated in the respective standards.
DAC:	Direct Attach Cable (coax). Can be active (ACU in item number) or passive (PCU in item number).
AOC:	Active Optical Cable (fiber). AOC in item number.