100G QSFP28 Active Direct Attach Copper Twinax Cable

Application

- Data Centre, High Performance Computing (HPC)
- Router, Server, Storage, Switch

Features

- Fully Compliant to the Latest SFF8665 QSFP28 MSA
- Optimized PCB with Auto Soldering Process
- EEPROM in Cable Assembly
- Enables 100Gb/s Transmission
- Active Capability

Description

The 100G QSFP28 Active Direct Attach Copper is high performance, cost effective solutions for high performance computing (HPC), and designed for use in 100GBASE Ethernet. Each QSFP28 connector comprises an EEPROM providing product information that can be read by the host system. This cable is compliant with the latest SFF8665 QSFP28 MSA.

Products Specifications

I. Absolute Maximum Ratings

Parameter	Min.	Typical	Max.
Storage Temperature	-40		85
Operating Case Temperature	0		70
Operating Relative Humidity			85
Power Supply Working Voltage	3.135	3.3	3.465
Bit Rate		100	

II. General Product Characteristics

Item		Parameter
Physical	Cable Colour	Black
Electrical	Resistance	2 ohm Max.
	Insulation Resistance	10M ohm Min.
SI Performance	SDD21	-22.48dB Min. @12.89GHz
	SDD11/SDD22	-16.5+2*sqrt(f)dB Max. @0.05GHz-4.1GHz 10.66+14*1og(f/5.5) dB

Item		Parameter
SI Performance	SCD22	-22+(20/25.78)*f dB Max. @0.01GHz~12.89GHz-15+(6/25.78)*f dB Max. @12.89GHz~19GHz
	SCC11	-2dB Max.
	SCD21-SDD21	-10dB Max. @0.01GHz~12.89GHz-27+(29/22)*f dB Max. @12.89GHz~15.7GHz-6.3dB Max @15.7GHz~19GHz
	MDNEXT	-30dB Max.
	COM	3dB Min.

III. EEPROM Information

The digital diagnostic memory map specific data field define as following. For detail EEPROM information, please refer to the related document of SFF 8636 Rev 2.1.

From	To	Content	No. of Bytes	Type
2-Wire Serial Address 1010000x Lower Page 00h				
0	2	ID and Status	3	Read-Ony
3	21	Interrupt Flags (Cear on Read)	19	Read-Only
22	33	Free Side Device Monitors	12	Read-Only
34	81	Channel Monitors	48	Read-Only
82	85	Reserved	4	Read-Only
86	99	Control	14	Read/Write
100	106	Free Side Interrupt Masks	7	Read/Write
107	110	Free Side Device Properties	4	Read-Ony
111	112	Assigned to PCI Express	2	Read/Write
113	116	Free Side Device Properties	4	Read-Ony

From	To	Content	No. of Bytes	Type
117	118	Reserved	2	Read/Wirite
119	122	Optional Password Change	4	Write-Only
123	126	Optional Password Enty	4	Write-Only
127	127	Page Select Byte	1	Read/Write
		Upper Page 00h		
128	128	Identifier	1	Read-Only
129	191	Base ID Fields	63	Read-Only
192	223	Extended ID	32	Read-Only
224	255	Vendor Specfic ID	32	Read-Only
		Page 01h (Optional)		
128	255	Reserved (Previously for SF -8079 Support)	128	Read-Only
		Page 02h (Optional)		
128	255	User EEPROM Data	128	Read/Write
		Page 03h(Optional)		
128	175	Free Side Device Threshaids	48	Read-Only
176	223	Channel Thresholds	48	Read-Only
224	229	Tx EQ, Rx Output and TC Support	6	Read-ony
230	241	Channel Controls	12	Read/Write
242	251	Channel Monitor Masks	10	Read/Write

From	To	Content	No. of Bytes	Type
252	255	Reserved	4	Read/Write
		Pages 04h-1 TOptional)		
128	255	Vendor' Specfic	128	Read/Write
		Pages 20h-21h (Optional)		
128	255	PAM-4 and WDM Features	128	Read/Write
		Pages 22h-7Fh (Optional)		
128	255	Reserved	128	Read/Write
		Pages 80h-FFh (Optional)		
128	255	Vendor Specific	128	Read/Write

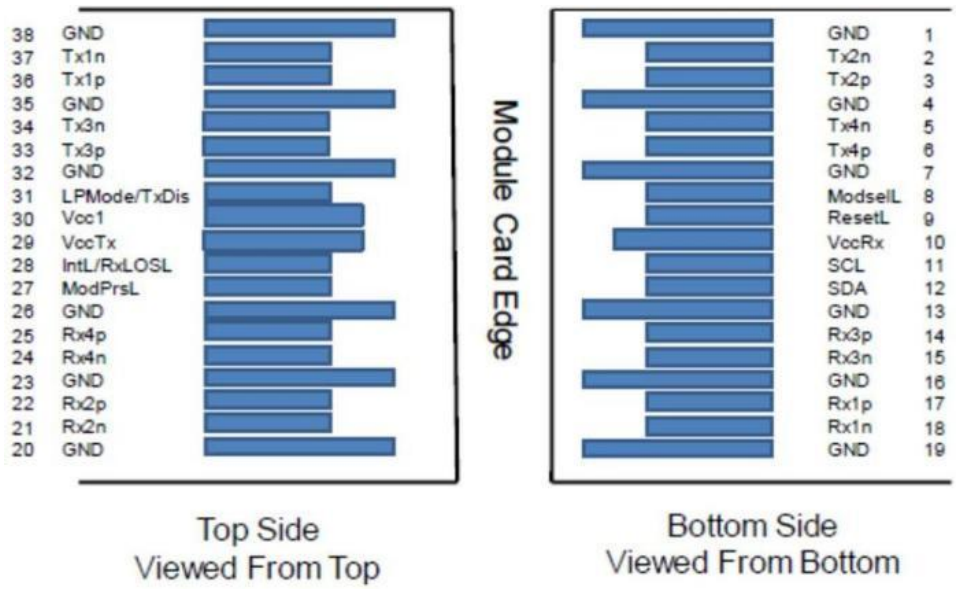
IV. PIN Function Definitions

Pad	Logic	Symbol	Description	Pug Seq- uence
1		GND	Ground	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	3
3	CML-I	Tx2p	Transmitter Non-Inverted Data Input	3
4		GND	Ground	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	3
6	CML-I	Tx4p	Transmitter Non-Inverted Data Input	3
7		GND	Ground	1
8	LVTTL-I	ModSelL	Moduie Select	3

Pad	Logic	Symbol	Description	Pug Seq- uence
9	LVTTL-I	ResetL	Module Reset	3
10		V_{CC}Rx	3.3V Power Supply Receiver	2
11	LVCMOS-I/O	SCL	Two-wire Interface Clock	3
12	LVCMOS-I/O	SDA	Two-wire interface data	3
13		GND	Ground	1
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	3
15	CML-O	Rx3n	Receiver Inverted Data Output	3
16		GND	Ground	I
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	3
18	CML-O	Rx1n	Receiver Inverted Data Output	3
19		GND	Ground	1
20		GND	Ground	1
21	CML-O	Rx2n	Receiver Inverted Data Output	3
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	3
23		GND	Ground	1
24	CML-O	Rx4n	Receiver Inverted Data Output	3
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	3
26		GND	Ground	1
27	LVTTL-O	ModPrsL	Module Present	3

Pad	Logic	Symbol	Description	Pug Seq- uence
28	LVTTL-O	IntL/RxL05L	Interrupt. Optionally Configurable as RxL0L Via the Management Interface (SFF-8636).	3
29		V_{CC}Tx	3.3V Power Supply Transmitter	2
30		V_{CC} 1	3.3V PowerSupply	2
31	LVTTL-I	LPMode/TxD is	Low Power Mode. 0ptionally cConfigurable as TxDis Via the Management Interface (SFF-8636).	3
32		GND	Ground	1
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	3
34	CML-I	Tx3n	Transmitter Inverted Data Input	3
35		GND	Ground	1
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	3
37	CML- I	Tx1n	Transmitter Inverted Data Input	3
38		GND	Ground	1

For detail mechanical information, please refer to the related document of SFF-8679

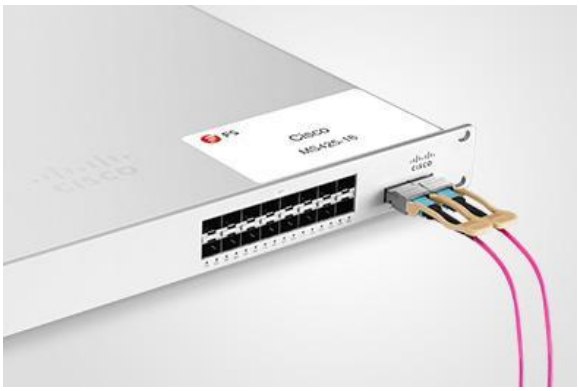


Test Center

I. Compatibility Testing

Each fiber optical transceiver has been tested in host device on site in FS Assured Program to ensure full compatibility with over 200 vendors.

Cisco Catalyst C9500-24Y4C



Cisco MS425-16

Brocade VDX 6940-144S

Dell EMC Networking Z9100-ON

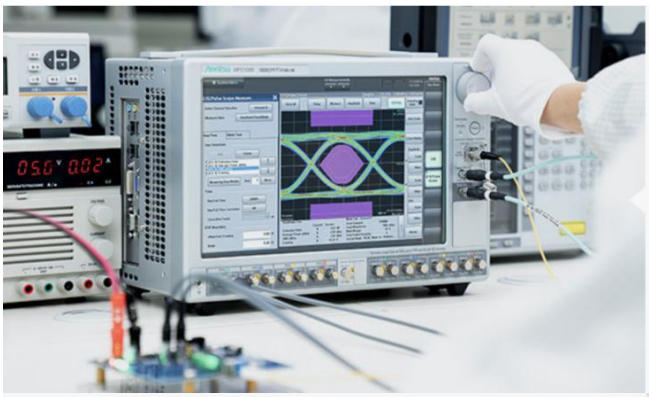
Force⑩tm S60-44T

HUAWEI S6720-30L-HI-24S

Above is part of our test bed network equipment. For more information, please click the Test Bed PDF. It will be updated in real time as we expand our portfolio.

II. Performance Testing

Each fiber optical transceiver has been fully tested in FS Assured Program equipped with world's most advanced analytical equipment to ensure that our transceivers work perfectly on your device.



1. TX/RX Signal Quality Testing

Equipped with the all-in-one tester integrated 4ch BERT & sampling oscilloscope, and variable optical attenuator to ensure the input and output signal quality.

- Eye Pattern Measurements: Jitter, Mask Margin, etc
- Average Output Power
- OMA
- Extinction Ratio
- Receiver Sensitivity
- BER Curve

2. Reliability and Stability Testing

Subject the transceivers to dramatic changes in temperature on the thermal shock chamber to ensure reliability and stability of the transceivers.

- Commercial: 0 °C to 70 °C
- Extended: -5 °C to 85 °C
- Industrial: -40 °C to 85 °C

3. Transfer Rate and Protocol Testing

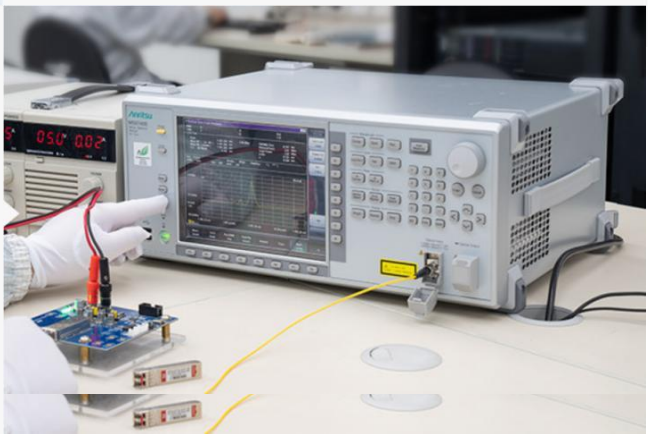
Test the actual transfer data rate and the transmission ability under different protocols with Network Master Pro.

- Ethernet
- Fibre Channel
- SDH/SONET
- CPRI

4. Optical Spectrum Evaluation

Evaluate various important parameters with the Optical Spectrum Analyzer to meet the industry standards.

- Center Wavelength, Level
- OSNR
- SMSR
- Spectrum Width



Order Information

Part Number	Data Rate	Length	Wire Gauge	Connector Type	Temp. Range	Cable Jacket
Q28-AC01	Up to 100G	1m	AWG30	Active Copper	0-70℃	PVC
Q28-AC03	Up to 100G	3m	AWG30	Active Copper	0-70℃	PVC
Q28-AC05	Up to 100G	5m	AWG28	Active Copper	0-70℃	PVC
Q28-AC07	Up to 100G	7m	AWG26	Active Copper	0-70℃	PVC
Q28-AC09	Up to 100G	9m	AWG26	Active Copper	0-70℃	PVC

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