

100G CFP2 to QSFP28 Adapter Converter Module

CVR-CFP2-QSFP28



Application

- 100GBE interconnects, IEEE 802.3ba 100GBASE-LR4(Adapter+QSFP28_LR4)
- High-speed core router connections& Datacom/Telecom switch
- Data aggregation and backplane applications
- Proprietary protocol and density application

Features

- Compliant to CFP2 Hardware Specification Version 1.0
- Compliant to CFP2 MSA Management Interface Specification Version 2.4
- 4 channels full-duplex transceiver
- Internal CDR circuits on both receiver and transmitter channels
- Transmission data rate up to 28Gbps per channel
- .OTU4 compatible
- Without FEC (Forward Error Correction)
- 1 port QSFP28 TX&RX, supports 100G QSFP28 LR4/ER4.
- Supports 100G QSFP28 SR4/PSM4/CWDM4/CLR4 (when the 100GE network equipment's CFP2 port has FEC function)
- MDIO digital diagnostic interface and control capabilities
- Power class 3 (Adapter<2W max)
- Hot pluggable electrical interface
- Operating case temperature:0° C~ +70° C
- Single 3.3V power supply
- RoHS 6 compliant(lead free)

Description

The 100G CFP2 to QSFP28 Adapter module is a four-Channel, high performance, hot pluggable, and interconnect solution supporting 100G Ethernet and Telecom. The adapter converts a CFP MSA interface to 1-port of 100GE QSFP28. It is compliant with the CFP MSA. Fiberstore 100G CFP2 to QSFP28 Adapter integrates four data lanes in each direction with operating at up to 28Gbps per lane.

The adapter without the FEC (Forward Error Correction) and supports 100G QSFP28 LR4/ER4. When the 100GE network equipment's CFP2 port has FEC function, it can support 100G QSFP28 SR4/PSM4/CWDM4/CLR4.

As showed in Figure 1, the adapter converts 4 parallel electrical data inputs to 4 parallel electrical data output signals through CDR circuits on both receiver and transmitter side.

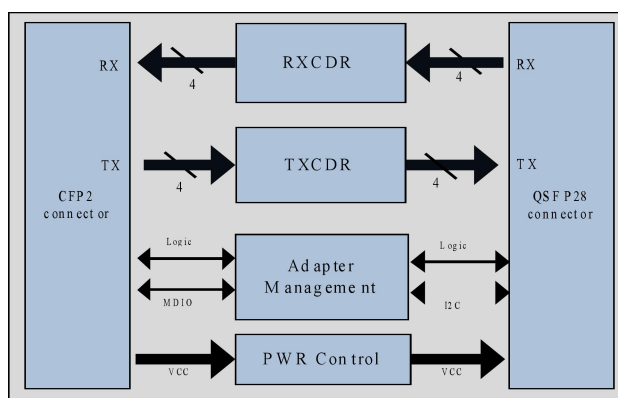


Figure1 - Adapter Block Diagram

Product Specifications

I. Absolute Maximum Ratings

Parameter	Symbol	Min	Typ.	Max	Unit	Ref.
Supply Voltage	Vcc	-0.5		3.6	V	
Input Voltage	Vin	-0.3		Vcc+0.3	V	
Storage Temperature	Tst	-20		85	°C	
Humidity(non-condensing)	Rh	5		85	%	

II. Recommended Operating Conditions

Parameter	Symbol	Min	Typ.	Max	Unit
Supply Voltage	Vcc	3.13	3.3	3.47	V
Operating Case temperature	Tca	0		70	°C
Data Rate Per Lane	fd	-	25.78125	27.952	Gbps
Power Dissipation	Pm			2	W
Low Power Mode Dissipation	P _{low}			2	W
Aggregate Bit Rate	BR _{aggr}		103.125	111.8	Gbps

III. Electrical Characteristics

Parameter	Symbol	Min	Typ.	Max	Unit	Ref.
Differential input impedance	Z _{in}	90	100	110	ohm	
25GBE	Differential input voltage amplitude	ΔV _{in}	300	900	mVp-p	1
	Differential output voltage amplitude	ΔV _{out}	400	800	mVp-p	2
	Bit Error Rate	BER			E-12	
Input Logic Level High	V _{IH}	2.0		VCC+0.3	V	3.3V LVCOMS
		0.84		1.5	V	1.2V LVCOMS
Input Logic Level Low	V _{IL}	-0.3		0.8	V	3.3V LVCOMS
		-0.3		0.36	V	1.2V LVCOMS

Output Logic Level High	VOH	VCC-0.2	VCC	V	3.3V LVCOMS
		1.0	1.5	V	1.2V LVCOMS
Output Logic Level Low	VOL	0	0.2	V	3.3V LVCOMS
		-0.3	0.2	V	1.2V LVCOMS

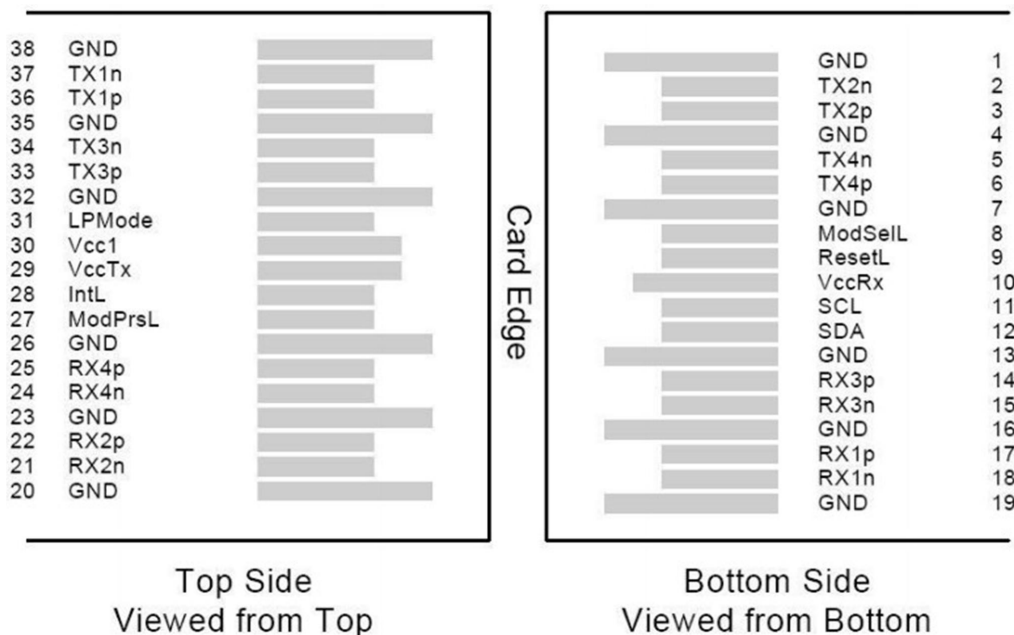
Notes:

Differential input voltage amplitude is measured between TxnP and TxnN.

Differential output voltage amplitude is measured between RxnP and RxnN. 3.

BER=10⁻¹²; PRBS 2³¹-1@25.78125Gbps.

V. Pin Descriptions



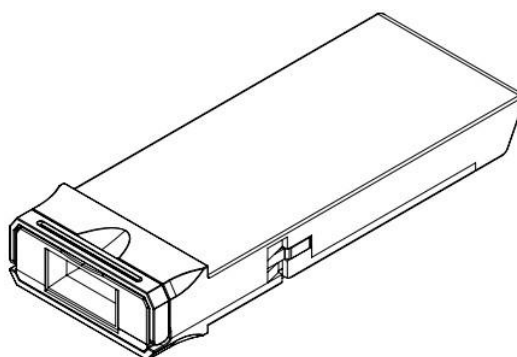
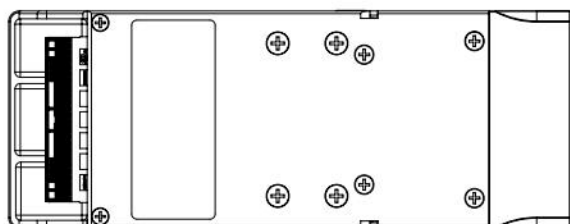
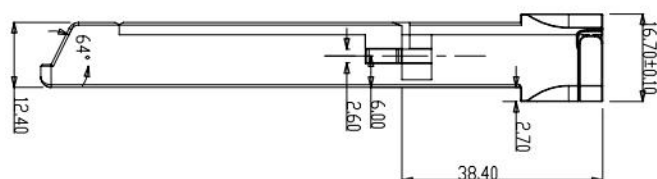
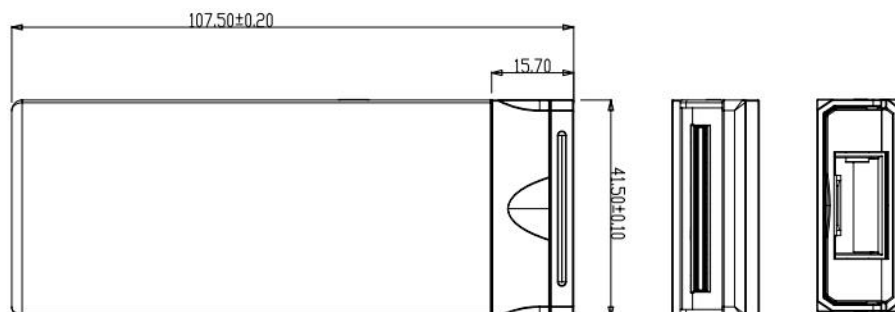
Pin	Logic	Symbol	Name/Description	Ref.
1		GND	Module Ground	1
2	CML-O	Tx2-	Transmitter inverted data output	
3	CML-O	Tx2+	Transmitter non-inverted data output	
4		GND	Module Ground	1
5	CML-O	Tx4-	Transmitter inverted data output	
6	CML-O	Tx4+	Transmitter non-inverted data output	
7		GND	Module Ground	1
8	LVTTL-O	MODSEIL	Module Select	2
9	LVTTL-O	ResetL	Module Reset	2
10		VCCRx	+3.3v Receiver Power Supply	
11	LVCMOS-O	SCL	2-wire Serial interface clock	2
12	LVCMOS-I/O	SDA	2-wire Serial interface data	2
13		GND	Module Ground	1
14	CML-I	RX3+	Receiver non-inverted data input	
15	CML-I	RX3-	Receiver inverted data input	
16		GND	Module Ground	1
17	CML-I	RX1+	Receiver non-inverted data input	
18	CML-I	RX1-	Receiver inverted data input	
19		GND	Module Ground	1

20		GND	Module Ground	1
21	CML-I	RX2-	Receiver inverted data input	
22	CML-I	RX2+	Receiver non-inverted data input	
23		GND	Module Ground	1
24	CML-I	RX4-	Receiver inverted data input	
25	CML-I	RX4+	Receiver non-inverted data input	
26		GND	Module Ground	1
27	LVTTTL-I	ModPrsL	Module Present, QSFP28 Module pulled down to GND	
28	LVTTTL-I	IntL	Interrupt input	2
29		VCCTx	+3.3v Transmitter Power Supply	
30		VCC1	+3.3v Power Supply	
31	LVTTTL-O	LPMode	Low Power Mode	2
32		GND	Module Ground	1
33	CML-O	Tx3+	Transmitter non-inverted data output	
34	CML-O	Tx3-	Transmitter inverted data output	
35		GND	Module Ground	1
36	CML-O	Tx1+	Transmitter non-inverted data output	
37	CML-O	Tx1-	Transmitter inverted data output	
38		GND	Module Ground	1

Notes:

Module circuit ground is isolated from module chassis ground within the module.
Open collector; pulled up with 4.7k ohms on the adapter board to a voltage 3.3V.

VI. Mechanical Specifications



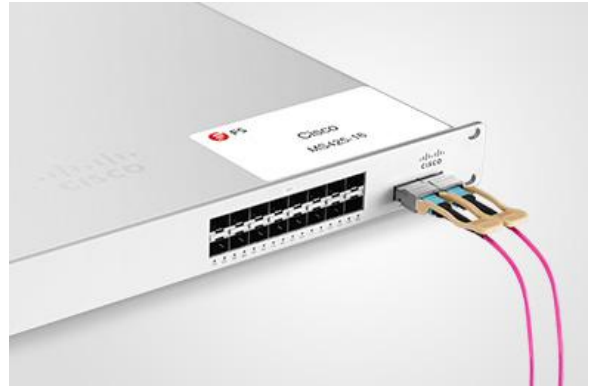
Test Center

I. Compatibility Testing

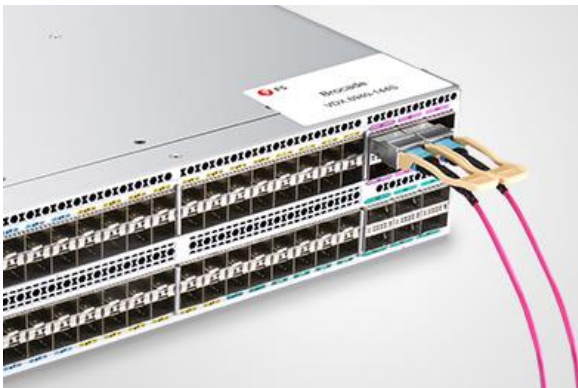
Each fiber optical transceiver has been tested in host device on site in FS Assured Program to ensure full compatibility with over 200 vendors.



Cisco Catalyst C9500-24Y4C



Cisco MS425-16



Brocade VDX 6940-144S



Dell EMC Networking Z9100-ON



Force@tm S60-44T

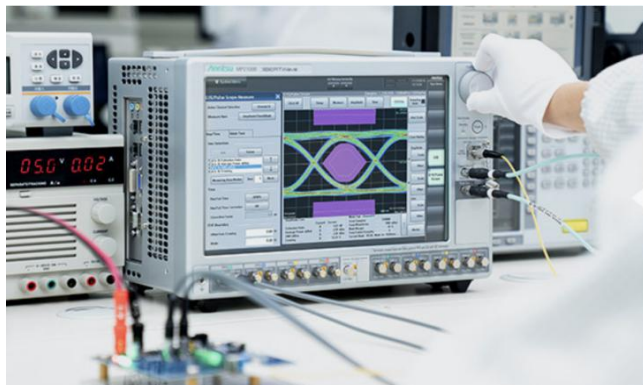


HUAWEI S6720-30L-HI-24S

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 Single Quality Testing

Equipped with the all-in-one tester integrated 4ch BERT & sampling oscilloscope, and variable optical attenuator 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 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 Networks Master Pro.

- Ethernet
- Fiber 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	Description
CVR-CFP2-QSFP28	100G CFP2 to QSFP28 Adapter Converter Module
CVR-QSFP28-SFP28	100G QSFP28 to 25G SFP28 Adapter Converter Module
CVR-CFP-QSFP28	100G CFP to QSFP28 Adapter Converter Module



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