

# 100G CFP2 to QSFP28 Adapter Converter Module

CVR-CFP2-100G-LL



## 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.

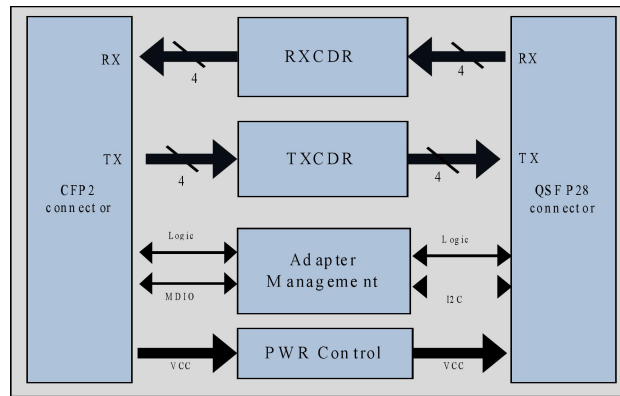


Figure1 - Adapter Block Diagram

## 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
<b>Supply Voltage</b>	Vcc	3.13	3.3	3.47	V
<b>Operating Case temperature</b>	Tca	0		70	°C
<b>Data Rate Per Lane</b>	fd	-	25.78125	27.952	Gbps
<b>Power Dissipation</b>	Pm			2	W
<b>Low Power Mode Dissipation</b>	Plow			2	W
<b>Aggregate Bit Rate</b>	BRaggr		103.125	111.8	Gbps

## III. Electrical Characteristics

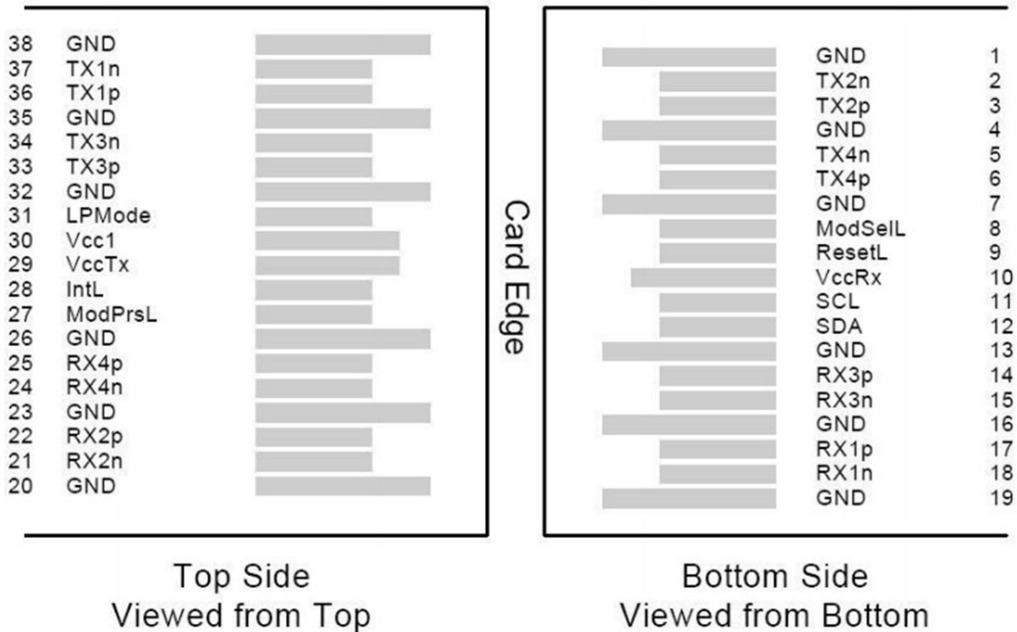
Parameter	Symbol	Min	Typ.	Max	Unit	Ref.
<b>Differential input impedance</b>	Zin	90	100	110	ohm	
<b>25GBE</b>	Differential input voltage amplitude	$\Delta V_{in}$	300	900	mVp-p	1
	Differential output voltage amplitude	$\Delta V_{out}$	400	800	mVp-p	2
	<b>Bit Error Rate</b>	BER			E-12	
<b>Input Logic Level High</b>	VIH	2.0		VCC+0.3	V	3.3V LVCOMS
		0.84		1.5	V	1.2V LVCOMS
<b>Input Logic Level Low</b>	VIL	-0.3		0.8	V	3.3V LVCOMS
		-0.3		0.36	V	1.2V LVCOMS

<b>Output Logic Level High</b>	VOH	VCC-0.2	VCC	V	3.3V LVCOMS
		1.0	1.5	V	1.2V LVCOMS
<b>Output Logic Level Low</b>	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<sup>-12</sup>; PRBS 2<sup>31</sup>-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		VCCR <sub>x</sub>	+3.3v Receiver Power Supply	
11	LVC MOS-O	SCL	2-wire Serial interface clock	2
12	LVC MOS-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

