	Datasheet	No.	DS10-J011
		Initial Date	2020-05-28
OJ	OJB7M8841	Written Team	R&D Dept.
			GH Zheng

I Preview


PN	OJB7M8841
Description	40G QSFP+ SR4 850nm Bi-Di 0.1KM LC DDMI 10~70 °C

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III Revision History

No.	Date	Items	Change Recording	Ver.	Rev.	Customer
1	2020-05-28	All	Initial registration	000	000	Standard
2						
3						
4						
5						
6						

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1. Features:

- ◆ Compliant to the 40GbE XLPI electrical specification per IEEE 802.3ba-2010
- ◆ 10.3125Gb/s data rate per channel
- ◆ Compliant to QSFP+ SFF-8436 Specification
- ◆ LC connector receptacle
- ◆ Hot Pluggable QSFP+ form factor
- ◆ Maximum link length of 100m on OM3 Multimode Fiber (MMF) and 150m on OM4 MMF
- ◆ Compatible with RoHS
- ◆ Single +3.3V power supply
- ◆ Real Time Digital Diagnostic Monitoring
- ◆ Operating case temperature: 10 to +70 °C

2. Applications

- ◆ 40GBASE-SR4 Ethernet
- ◆ Switch, router and HBAs
- ◆ Infiniband transmission at 4 channels SDR, DDR and QDR
- ◆ High-performance Backplane Applications
- ◆ Proprietary Protocol Applications

3. Description

The 40G QSFP+ SR4 Bi-Di transceivers are high performance, cost effective modules supporting data rate of 40Gbps and 100m transmission distance with MMF: 100m on OM3 Multimode Fiber (MMF) and 150m on OM4 MMF. It integrates four electrical data lanes in each direction into transmission over a single LC duplex fiber optic cable. Each electrical lane operates at 10.3125 Gbps and conforms to the 40GE XLPI interface. All modules satisfy class I laser safety requirements. The transceivers are compatible with 40GBASE-SR4 of IEEE802.3ba standard and SFF-8436 specification.

The transceiver internally multiplexes an XLPI 4x10G interface into two 20Gb/electrical channels, transmitting and receiving each optically over one simplex LC fiber using bi-directional optics. This results in an aggregate bandwidth of 40Gbps into a duplex LC cable. This allows reuse of the installed LC duplex cabling infrastructure for 40GbE application. Link distances up to 100 m using OM3 and 150m using OM4 optical fiber are supported. These modules are de- signed to operate over multimode fiber systems using a nominal wavelength of 850nm on one end and 900nm on the other end. The electrical interface uses a 38 contact QSFP+ type edge connector. The optical interface uses a conventional LC duplex connector.

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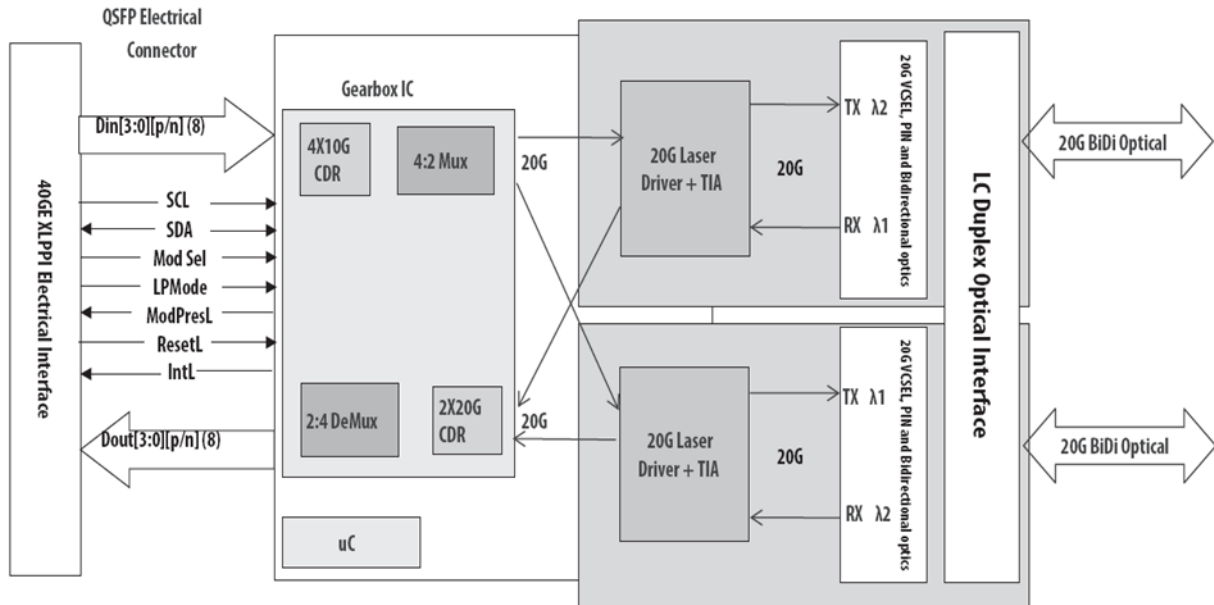


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Transceiver functional diagram

4. Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	Vcc	-0.5	3.6	V
Storage Temperature	Ts	-40	+85	°C
Operating Humidity	-	5	85	%

5. Operating Environment


Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	Tc	10		+70	°C
Power Supply Voltage	Vcc	3.135	3.30	3.465	V
Power Dissipation	Pm			3.5	W
Data Rate			10.3125		Gbps

6. Optical and Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter						
Centre Wavelength	λ_{c1}	832	850	868	nm	
Centre Wavelength	λ_{c2}	882	900	918	nm	
RMS spectral width	$\Delta\lambda$	-	-	0.65	nm	
Average launch power,	P_{out}	-4		+5	dBm	

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each lane						
Extinction Ratio	ER	3.5			dB	
Average launch power of OFF transmitter,each lane	P_{off}			-30	dBm	
Transmitter and Dispersion Penalty each lane	TDP			3.5	dB	
Optical Return Loss Tolerance	ORL			12	dB	
Transmitter Eye Mask Definition {X1, X2, X3, Y1, Y2, Y3}	{0.23, 0.34, 0.43, 0.27, 0.35, 0.4}					
Receiver						
Centre Wavelength	Λ_{c1}	882	900	918	nm	
Centre Wavelength	Λ_{c2}	832	850	868	nm	
Damage threshold	THd	3.4			dBm	
Average power at receiver input,each lane		-6	-	+5	dBm	
Receiver Reflectance	Rr			-12	dBm	
LOS De-Assert	LOS _D			-14	dBm	
LOS Assert	LOS _A	-30			dBm	
LOS Hysteresis		0.5			dB	

7. Digital Diagnostic Memory Map

The transceivers provide serial ID memory contents and diagnostic information about the present operating conditions by the 2-wire serial interface (SCL, SDA).

The digital diagnostic memory map specific data field defines as following.

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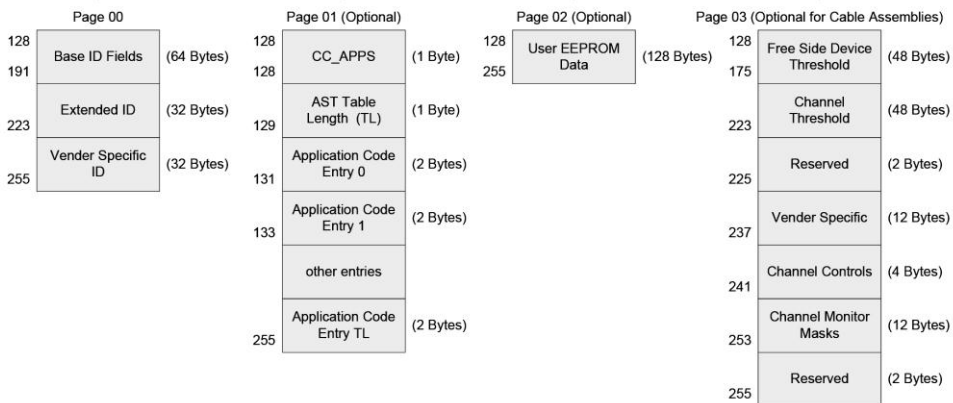
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2-Wire Serial Address: 1010000x

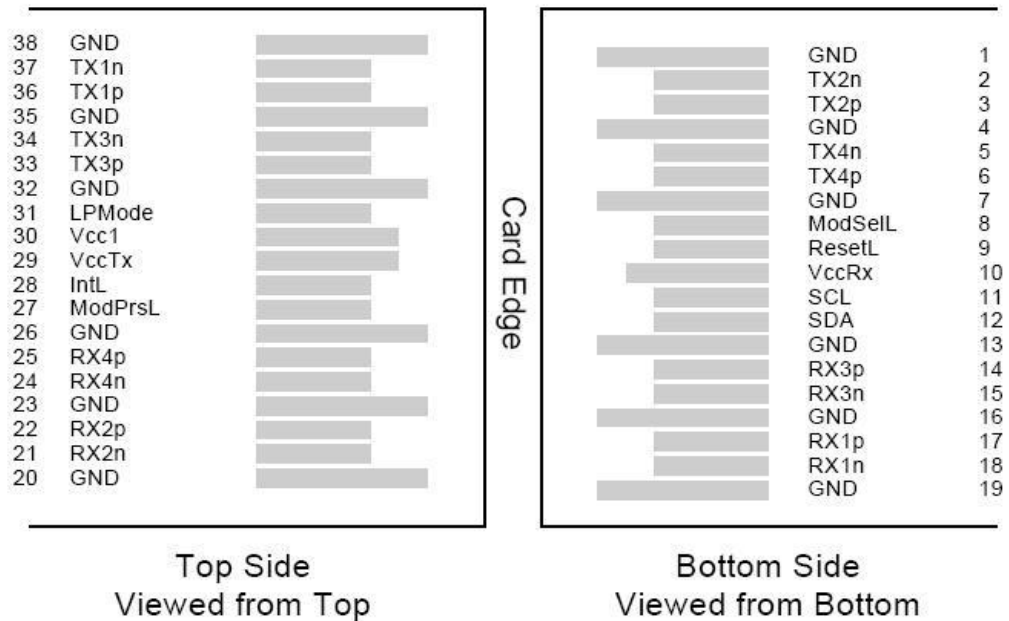
0	ID and status	(3 Bytes)
2		
21	Interrupt Flags	(19 Bytes)
33	Module Monitors	(12 Bytes)
81	Channel Monitors	(48 Bytes)
85	Reserved	(4 Bytes)
97	Control	(12 Bytes)
99	Reserved	(2 Bytes)
106	Free Side Device and Channel Mask	(7 Bytes)
107	Reserved	(1 Bytes)
111	Free Side Device Properties	(4 Bytes)
118	Reserved	(7 Bytes)
122	Password Change Entry Area (Optional)	(4 Bytes)
126	Password Entry Area (Optional)	(4 Bytes)
127	Page Select Byte	(1 Bytes)



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8. Pin Descriptions



PIN	Logic	Symbol	Name/Description	Note
1		GND	Ground	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data output	
4		GND	Ground	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data output	
7		GND	Ground	1
8	LVTTLL-I	ModSelL	Module Select	
9	LVTTLL-I	ResetL	Module Reset	
10		VccRx	+ 3.3V Power Supply Receiver	2
11	LVC MOS-I/O	SCL	2-Wire Serial Interface Clock	
12	LVC MOS-I/O	SDA	2-Wire Serial Interface Data	
13		GND	Ground	
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	

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15	CML-O	Rx3n	Receiver Inverted Data Output	
16		GND	Ground	1
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	
18	CML-O	Rx1n	Receiver Inverted Data Output	
19		GND	Ground	1
20		GND	Ground	1
21	CML-O	Rx2n	Receiver Inverted Data Output	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	
23		GND	Ground	1
24	CML-O	Rx4n	Receiver Inverted Data Output	1
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Ground	1
27	LVTTL-O	ModPrsL	Module Present	
28	LVTTL-O	IntL	Interrupt	
29		VccTx	+3.3 V Power Supply transmitter	2
30		Vcc1	+3.3 V Power Supply	2
31	LVTTL-I	LPMODE	Low Power Mode	
32		GND	Ground	1
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	
34	CML-I	Tx3n	Transmitter Inverted Data Output	
35		GND	Ground	1
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	
37	CML-I	Tx1n	Transmitter Inverted Data Output	
38		GND	Ground	1

Notes:

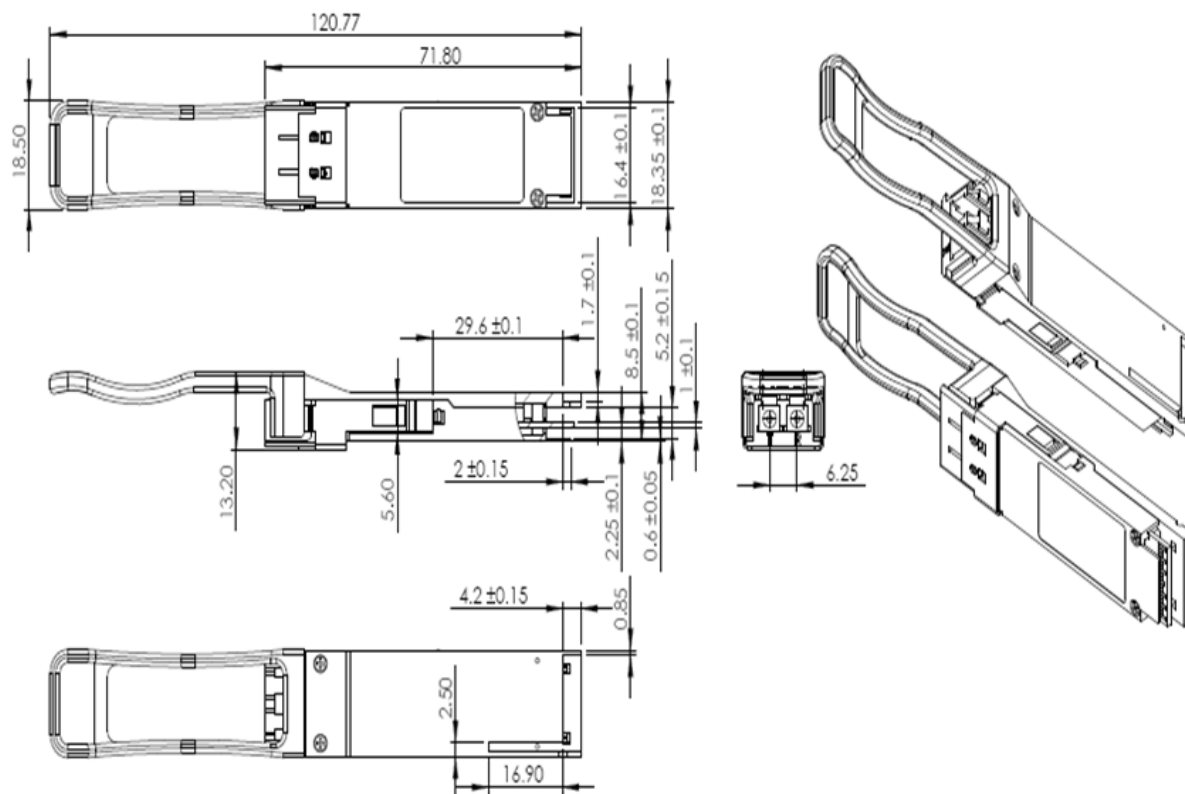
1. GND is the symbol for signal and supply (power) common for QSFP modules. All are common within the QSFP module and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal common ground plane.

2. VccRx, Vcc1 and VccTx are the receiver and transmitter power suppliers and shall be applied concurrently. Recommended host board power supply filtering is shown below. Vcc Rx, Vcc1 and Vcc Tx may be internally connected within the QSFP transceiver module in any combination. The connector pins are each rated for a maximum current of 500mA.

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9. Mechanical Dimensions



10. Module Ordering information

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