C-PCIE-LC-FX-X1

100Mbs Single LC Port 2km MMF PCIe 2.0 x1 Network Interface Card

Features

- Single-port PCI-Express 100FX Ethernet adapter
- High-performing design supporting PCI Express* Gen 2.1 2.5GT/s
- 100Mbps fast ethernet, Full duplex or half-duplex, reach 200Mbps in full duplex
- Supports IEEE 802.3x flow control
- Supports IP Unicast broadcast and multicast address filtering mechanism
- Supports priority queue
- Supports IEEE 802.1Q VLAN tagging
- Supports IP mutlicast packet filter to reduce host CPU usage
- Interrupt moderation
- Compatible with Fast Ethernet and Ethernet
- Support for most network operating systems
- Compliant with PCIe Rev. 1.1 interface
- Advanced cable diagnostics
- Optimized queues: 2 Transmit (Tx) and 2 Receive (Rx)
- MSI-X support

Product Description

This is a Fast Ethernet PCIe 2.0 x1 network interface card with a single LC port that complies with IEEE 802.3 standards. It is based on an Intel 82574 chipset and is compatible with a variety of different applications and operating systems, including Windows, Linux and Unix-like systems. Providing 100Mbs of network speed, it fully supports high-end servers and various other networking applications. In addition, this card supports high level VLAN filtering. The single LC port accommodates multi-mode, providing a reach up to 2km. This product includes both half-height and full-height brackets. Our network interface cards are 100% compliant, and offer a cost effective solution for all of your network upgrade needs. With our certification test program, we guarantee your product will work right the first time.

Network Interface Card Specifications

Parameter	Specifications
Bus Interface	PCI Express* 2.1 (2.5GT/s)
Connector	LC (Fiber)
IEEE Standard/Network Topology	100BASE-SX/LX
Cabling Distance	100BASE-SX: 275m at 62.5µm; 550m at 50µm 100BASE-LX: 10km at 9µm
Data Rate Supported Per Port	100Mbps
Interrupt Levels	INTA, INTB, INTC, INTD, MSI, MSI-X
Bus Width	1-Lane PCI Express; Operable in x1 or Greater Slots
Hardware Certifications	FCC, CE
Controller - Processor	Intel® Ethernet Controller 82574
Power Consumption (Active-Typical)	0.75W
Operating Temperature	0℃ to 55℃ (32℉ to 131℉)
Storage Temperature	-40℃ to 70℃ (-40℉ to 158℉)
Storage Humidity	90% Non-Condensing Relative Humidity at 35℃
Connect Speed LED Indicators	Link/Activity LED: Off = No Link; On = Link; Blinking = Activity
Full-Height End Bracket	12.07cm (4.755 Inches)
Low-Profile End Bracket	8cm (3.15 Inches)
Packing Specifications	18x15x3cm (7.08x5.9x1.18 Inches)

Transceiver Specifications

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Maximum Supply Voltage	Vcc	-0.5		3.6	V
Storage Temperature	Tstg	-40		85	°C
Operating Case Temperature	Tc	0		70	°C
Operating Humidity	RH			95	%
Receiver Power	R_{MAX}			-12	dBm
Data Rate			100/155		Mbps
50µm Core Diameter MMF	L		2		km

Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage		Vcc	3.15	3.30	3.45	V	
Power Supply Current		Icc			300	mA	
Transmitter							
LVPECL Differential Inputs		VIN	400		2000	mVp-p	1
Input Differential Impedance		ZIN	85	100	120	Ω	2
Tx_Disable	Disable		2		Vcc	V	
	Enable		0		0.8	V	
Tx_Fault	Fault		2		Vcc+0.3	V	
	Normal		0		0.5	V	
Receiver							
LVPECL Differential Outputs		VOUT	400		2000	mVp-p	1
Output Differential Impedance		ZIN	85	100	120	Ω	
Tx_Disable Assert Time		T_off			10	us	
Rx_LOS	LOS		2		Vcc+0.3	V	
	Normal		0		0.8	V	
MOD_DEF (0.2)		VOH	2.5			V	3
		VOL	0		0.8	V	3

Notes:
1. AC Coupled.
2. RIN>100kΩ @DC.
3. With Serial ID.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Average Output Power	POUT	-19		-14	dBm	1
Optical Extinction Ratio	ER	10			dB	2
Optical Wavelength	Tλ	1260	1310	1360	nm	
Spectral Width (RMS)	Δλ			4	nm	
Total Jitter	TJ			1	ns	2
Tx_Disable Asserted Time	T_off			10	us	
POUT @Tx_Disable Asserted	POUT			-45	dBm	
Rise/Fall Time (20-80%)	Tr/Tf			2	ns	
Output Optical Eye		IUT-T G.957 Compliant				
Receiver						
Receiver Sensitivity	P_{min}			-31	dBm	3
Receiver Overload	P_{max}	-12			dBm	
Optical Center Wavelength	λC	1260		1600	nm	
Return Loss		14			dB	

Notes:

1. Output power is measured by coupling into a 50/125μm multi-mode fiber.
2. Filtered. Measured with a PRBS $2^{23}-1$ test pattern @155Mbps.
3. Minimum average optical power is measured at BER less than $1E^{-12}$ with $2^{23}-1$ PRBS and ER=9dB.

Pin Descriptions

Pin	Symbol	Name/Description	Notes
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	Tx_Fault	Transmitter Fault. LVTTL-O.	2
3	Tx_Disable	Transmitter Disable. Laser output disabled on "high" or "open." LVTT-I.	3
4	SDA	2-Wire Serial Interface Data (Same as MOD-DEF2 in INF-8074i). LVTTL-I/O.	
5	SCL	2-Wire Serial Interface Clock (Same as MOD-DEF2 in INF-8074i). LVTTL-I.	
6	MOD_ABS	Module Absent. Connect to VeeT or VeeR in the module.	4
7	RS0	Rate Select 0. Not Used.	5
8	LOS	Loss of Signal Indication. "Logic 0" indicates normal operation. LVTTL-O.	2
9	RS1	Rate Select 1. Not Used.	5
10	VeeR	Receiver Ground (Common with Transmitter Ground).	1
11	VeeR	Receiver Ground (Common with Transmitter Ground).	1

| 12	RD-	Receiver Inverted Data Out. AC Coupled. CML-O.	
13	RD+	Receiver Non-Inverted Data Out. AC Coupled. CML-O.	
14	VeeR	Receiver Ground (Common with Transmitter Ground).	1
15	VccR	Receiver Power Supply.	
16	VccT	Transmitter Power Supply.	
17	VeeT	Transmitter Ground (Common with Receiver Ground).	1
18	TD+	Transmitter Non-Inverted Data In. AC Coupled. CML-I.	
19	TD-	Transmitter Inverted Data In. AC Coupled. CML-I.	
20	VeeT	Transmitter Ground (Common with Receiver Ground).	1

Notes:

1. The module signal ground contacts, VeeR and VeeT, should be isolated from the module case.
2. This contact is an open collector/drain output and should be pulled up to the Host_Vcc with a resistor in the range 4.7kΩ to 10kΩ. Pull-ups can be connected to one or several power supplies; however, the host board design shall ensure that no module contact has a voltage exceeding the module VccT/R+0.5V.
3. Tx_Disable is an input contact with a 4.7kΩ to 10kΩ pull-up resistor to the VccT inside the module.
4. MOD_ABS is connected to the VeeT or VeeR in the SFP+ module. The host may pull the contact up to the Host_Vcc with a resistor in the range from 4.7kΩ to 10kΩ. MOD_ABS is asserted "high" when the SFP+ module is physically absent from a host slot.
5. Internally pulled down per SFF-8431.
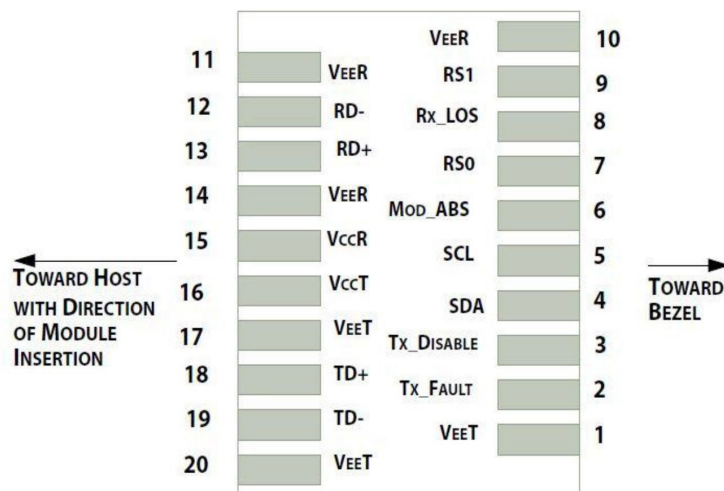
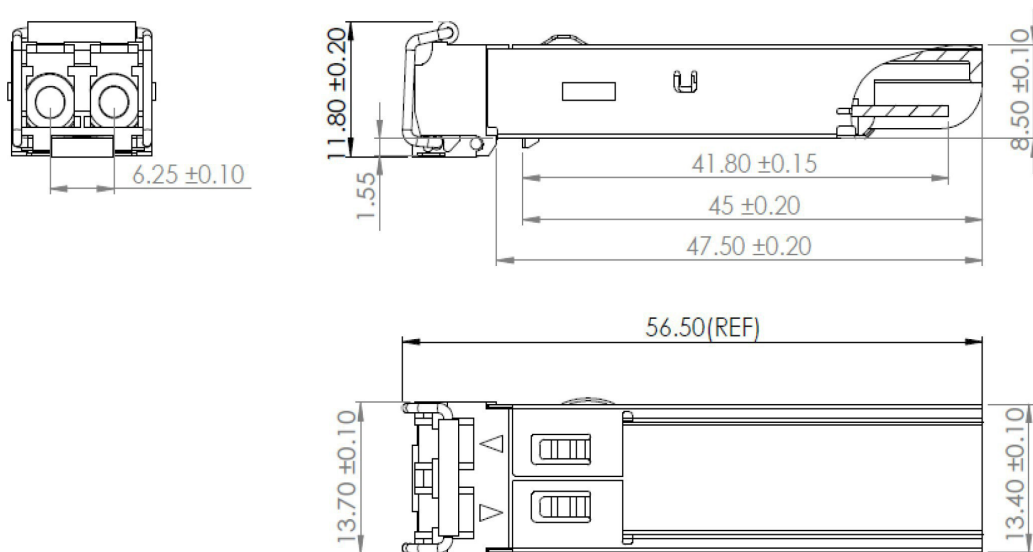

Pin-Out of Connector Block on the Host Board

Recommend Circuit Schematic
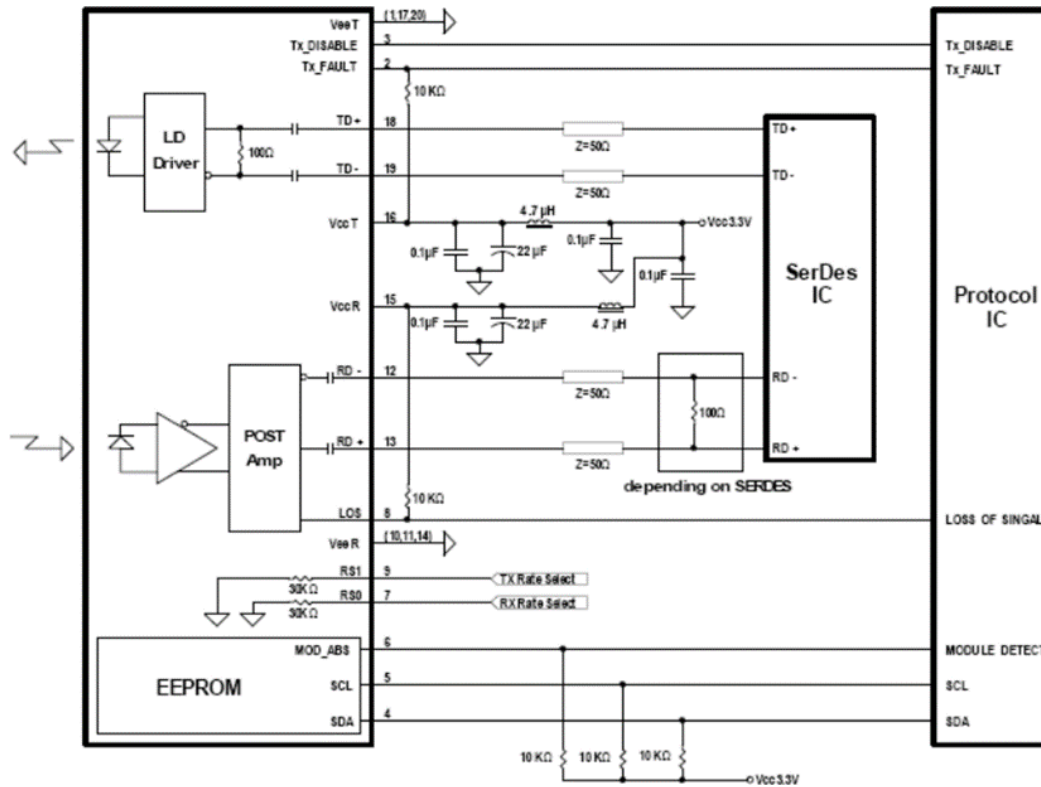
Mechanical Specifications

Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).

EEPROM Information

EEPROM memory map-specific data field description is as below:

2 wire address 1010000X (A0h)	2 wire address 1010001X (A2h)
0	0
Serial ID Defined by SFP MSA (96 bytes)	Alarm and Warning Thresholds (56 bytes)
	55
95	Cal Constants (40 bytes)
Vendor Specific (32 bytes)	95
	Real Time Diagnostic Interface (24 bytes)
127	119
	Vendor Specific (8 bytes)
	127
Reserved, SFF8079 (128 bytes)	User Writable EEPROM (120 bytes)
	247
255	Vendor Specific (8 bytes)
	255
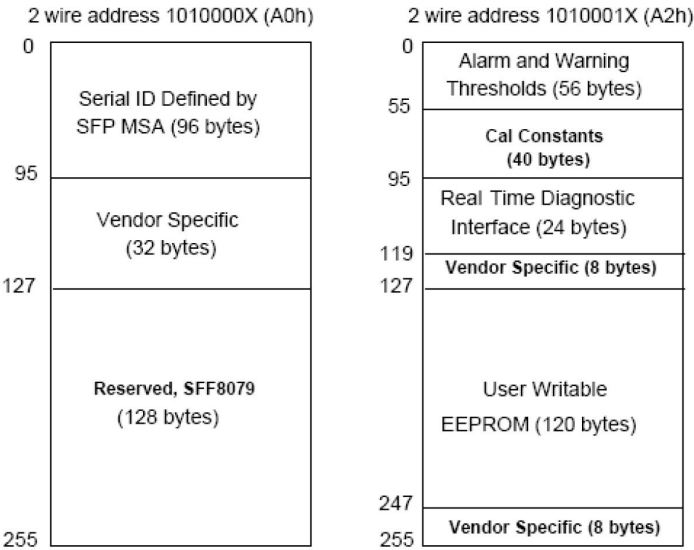
About ProLabs

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.

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