I350F4-AO

Intel® I350F4 Comparable 1Gbs Quad Open SFP Port 550m MMF PCIe 2.0 x4 Network Interface Card w/4 1000Base-SX SFP Transceivers

Features

- 4x Open SFP Port w/ 4x SX SFP
- Intel 82576
- LEDS indicators for link/Activity Mode
- Supports 1000Base-LX, SX
- Deep packet buffer per channel lowers CPU utilization
- Controllers offload TCP/UDP/IP checksum calculations
- Small Form Factor Pluggable (SFP) Cage for SFP LC connector
- Virtual LANs-02.1q VLAN tagging
- Compliant with PCIe Rev.1.1 interface
- 802.x Flow control
- Connects over PCIe x1 bus
- Commercial Temperature 0 to 70 Celsius

Product Description

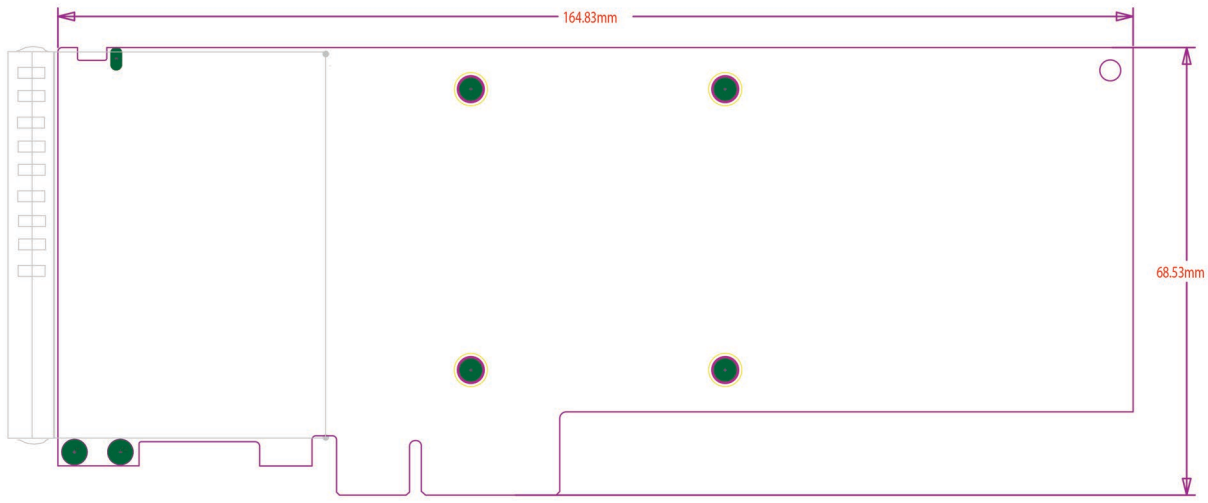
This is an Intel® I350F4 comparable Gigabit Ethernet PCIe 2.0 x4 network interface card with 4 included SX SFP transceivers that comply with IEEE 802.3 standards. It is based on an Intel i350 chipset and is compatible with a variety of different applications and operating systems, including Windows, Linux and Unix-like systems. Providing 1Gbs of network speed, it fully supports high-end servers and various other networking applications. In addition, this card supports high level VLAN filtering. The quad open SFP ports accommodate multi-mode, providing a reach up to 550m. 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.

AddOn's transceivers are RoHS compliant and lead-free.

Network Interface Card Technical Specifications

Parameter	Server Network Card	
Bus Interface	PCIe X4	
Operating Distance	Single-Mode: Multi-Mode:	10km at 9µm 550m at 50µm 550m at 62.5µm
Network Interface Type	4x SFP Port (1000Base-SX, 1000Base-LX) LC fiber	
Transmission Speed (Mbps)	1000	
Transmission Medium Type	Fiber	
Network Standard	IEEE802.3 (1000Base-SX, 1000Base-LX)	
Compatible Operating System	Windows Linux FreeBSD VMware	
Working Temperature	-5°C - 40°C	
Storage Temperature	-40°C - 65°C	

Mechanical Specifications



Transceiver Specifications

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	Vcc	-0.5		4.0	V
Storage Temperature	TS	-40		85	°C
Case Operating Temperature	Tc	0		70	°C
Operating Humidity	RH	5		95	%
Data Rate (Gigabit Ethernet)			1.25		Gbps
Data Rate (Fibre Channel)			1.063		Gbps
50/125µm MMF	L			550	m

Electrical Characteristics (TOP=25°C, Vcc=3.3V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.13	3.30	3.47	V	
Power Supply Current	Icc			250	mA	
Transmitter						
Input Differential Impedance	RIN		100		Ω	1
Single-Ended Data Input Swing	Vin, pp	250		1200	mV	
Tx_Disable-High		Vcc-1.3		Vcc	V	
Tx_Disable-Low		Vee		Vee+0.8	V	
Tx_Fault-High		Vcc-0.5		Vcc	V	
Tx_Fault-Low		Vee		Vee+0.5	V	
Receiver						
Single-Ended Data Output Swing	VOUT, pp	300	400	800	mV	2
Data Output Rise Time	Tr			175	ps	3
Data Output Fall Time	Tf			175	ps	3
LOS-High		Vcc-0.5		Vcc	V	
LOS-Low		Vee		Vee+0.5	V	

Notes:

1. AC coupled.
2. Into 100Ω differential termination.
3. 20% - 80%

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Average Output Power	PO	-9		-4	dBm	1
Optical Wavelength	λ	830	850	860	nm	
Spectral Width	σ			0.85	nm	
Optical Rise/Fall Time	Tr/Tf			260	ps	2
Total Jitter	TJ			200	ps	
Optical Extinction Ratio	ER	9			dB	
Receiver						
Receiver Sensitivity	RSENS			-18	dBm	3,4
Maximum Received Power	RX_{MAX}	0			dBm	
Centre Wavelength	λC	770		860	nm	
LOS De-Assert	LOSD			-26	dBm	
LOS Assert	LOSA	-40			dBm	
LOS Hysteresis		0.5		5	dB	

Notes:

1. Class 1 Laser Safety.
2. Unfiltered, 20%-80%. Complies with GE and 1x FC eye masks when filtered.
3. Measured with conformance signals defined in FC-PI-2 Rev. 10.0 specifications.
4. Measured with PRBS 2^7-1 at 10^{-10} BER.

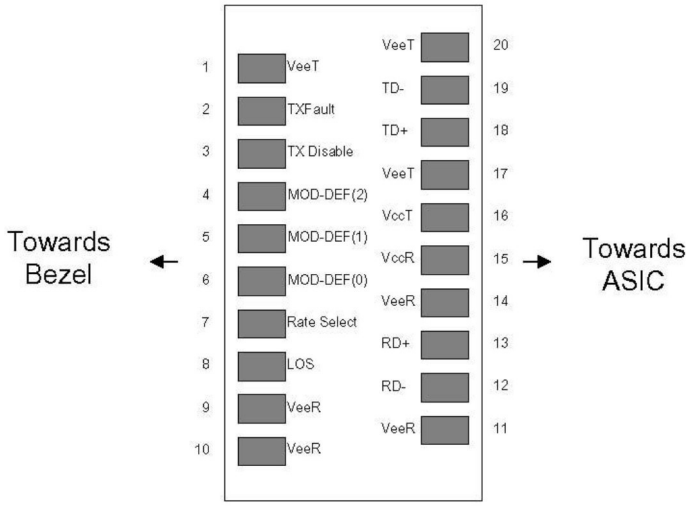
Pin Descriptions

Pin	Symbol	Name/Descriptions	Ref.
1	VeeT	Transmitter Ground (Common with Receiver Ground)	1
2	Tx_Fault	Transmitter Fault.	
3	Tx_Disable	Transmitter Disable. Laser output disabled on high or open.	2
4	MOD_DEF (2)	Module Definition 2. Data line for Serial ID.	3
5	MOD_DEF (1)	Module Definition 1. Clock line for Serial ID.	3
6	MOD_DEF (0)	Module Definition 0. Grounded within the module.	3
7	Rate Select	No connection required.	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	4
9	VeeR	Receiver Ground (Common with Transmitter Ground)	1
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.	
13	RD+	Receiver Non-inverted Data out. AC Coupled.	
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.	
19	TD-	Transmitter Inverted Data in. AC Coupled.	
20	VeeT	Transmitter Ground (Common with Receiver Ground)	1

Notes:

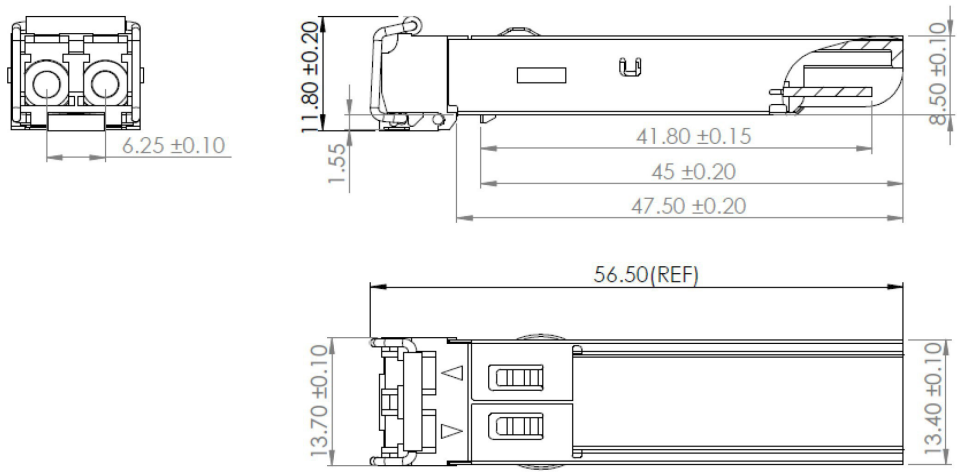
1. Circuit ground is internally isolated from chassis ground.
2. Laser output disabled on Tx_Disable >2.0V or open, enabled on Tx_Disable <0.8V.
3. Should be pulled up with 4.7kΩ -10kΩ on host board to a voltage between 2.0V and 3.6V. MOD_DEF (1) pulls line low to indicate module is plugged in.
4. LOS is open collector output. Should be pulled up with 4.7kΩ -10kΩ on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation. “Logic 1” indicates loss of signal.



Pin-Out of Connector Block on Host Board

Mechanical Specifications

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



About AddOn Networks

In 1999, AddOn Networks entered the market with a single product. Our founders fulfilled a severe shortage for compatible, cost-effective optical transceivers that compete at the same performance levels as leading OEM manufacturers. Adhering to the idea of redefining service and product quality not previously had in the fiber optic networking industry, AddOn invested resources in solution design, production, fulfillment, and global support.

Combining one of the most extensive and stringent testing processes in the industry, an exceptional free tech support center, and a consistent roll-out of innovative technologies, AddOn has continually set industry standards of quality and reliability throughout its history.

Reliability is the cornerstone of any optical fiber network and is in engrained in AddOn's DNA. It has played a key role in nurturing the long-term relationships developed over the years with customers. AddOn remains committed to exceeding industry standards with certifications from ranging from NEBS Level 3 to ISO 9001:2005 with every new development while maintaining the signature reliability of its products.

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