Silicom Connectivity Solutions

PE310G2I71

10 Gigabit Ethernet Card Dual Port Fiber SFP+ Network Interface Card Intel® X710DA2 Based

Product Description

Silicom's 10 Gigabit Ethernet Cards are designed for Servers and high-end appliances.



The Silicom 10 Gigabit Ethernet PCI Express Network Interface Cards offer simple integration into any PCI Express X8 to 10Gigabit Networks.

The performance is optimized so that system I/O is not the bottleneck in high-performance networking applications.

The Silicom 10 Gigabit Ethernet PCI Express server adapters are based on Intel X710 Ethernet controller with fully integrated Gigabit Ethernet Media Access Control (MAC) and SFI Interface.

In addition to managing MAC and PHY Ethernet layer functions, the controller manages PCI Express packet traffic across its transaction, link, and physical/logical layers. Using hardware acceleration, the controller offloads tasks from the host, such as TCP/UDP/IP checksum calculations and TCP segmentation.



Silicom's 10 Gigabit Ethernet PCI-Express Network Interface Cards are the ideal solution for implementing multiple network segments, mission-critical high-powered networking applications and environments within high performance servers.

Key Features

SFP+ 10Gigabit Ethernet:

10Gigabit Ethernet Adapter with SFP cage support:

-SRD: Fiber 1/10 Gigabit Ethernet 1000Base-SX / 10GBASE-SR:

- 1000BASE-SX with 1G 850nM Small form Factor Pluggable (SFP+)
- 10GBASE-SR with 10Gigabit 850nM Small form Factor Pluggable (SFP+)

-LRD: Fiber 1/10 Gigabit Ethernet 1000Base-LX / 10GBASE-LR:

- 1000BASE-LX with 1G 1310nM Small form Factor Pluggable (SFP+)
- 10GBASE-LR with 10Gigabit 1310nM Small form Factor Pluggable (SFP+)

-SRD: Fiber 1/10 Gigabit Ethernet 1000Base-SX / 10GBASE-SR:

- 10 Gigabit Fiber Ethernet port supports 10GBASE-SR (850nM LAN PHY)
- 1Gigabit Fiber Ethernet port supports 1000BASE-SX (850nM LAN PHY)
- 1/10Gigabit 850nM Small form Factor Pluggable (SFP+)

-LRD: Fiber 1/10 Gigabit Ethernet 1000Base-LX / 10GBASE-LR:

- 10 Gigabit Fiber Ethernet port supports 10GBASE-LR (1310nM LAN PHY)
- 1Gigabit Fiber Ethernet port supports 1000BASE-LX (1310nM LAN PHY)
- 1/10Gigabit 1310nM Small form Factor Pluggable (SFP+)

Performance Features:

- Support for jumbo frame up to 9.5KB
- Flow control support
- Priority Flow Control (draft IEEE 802.1Qbb)
- Enhanced Transmission Selection (draft IEEE802.1az)
- Statistics management and RMON
- 802.1q VLAN support
- DCB/DCB-X support
- Message Signal interrupts (MSI-X)
- Storage – Enabling competitive performance with native OS intelligent offload solutions, including NAS, iSCSI and FCoE

Host Interface:

- PCI Express GEN3 X8 lanes
- Support PCI Express Base Specification 3.0 (8GT/sec)

LAN and Virtualization Features:

- Network Virtualization offloads for VXLAN and NVGRE
- Unified Networking Providing a single wire for LAN and storage: NAS (SMB, NFS) and SAN (iSCSI, FCoE)
- Virtual Bridging Support – VEPA/802.1Qbg, BPE/802.1Qbh
- Physical Functions – Up to 8 per port, up to 16 per device
- Support for 128 Virtual Device Queues (VMDq) per port
- Hardware Queue Pairs – Up to 1.5K (non-RDMA); up to 256K (RDMA)
- Virtualization – Alleviating hypervisor I/O bottlenecks by providing flow separation for Virtual Machines (VMs)

TCP/IP/L2 features:

- Receive Side Scaling (RSS)
- Large Send Offload (LSO)
- TCP/UDP/IP/SCTP Checksum Offload
- IPV4, IPV6

Technical Specifications

SFP+ 10Gigabit Ethernet Technical Specifications Adapters:	
SFP+ (Small Form Factor Pluggable) supports:	SFI interfaces supports 10GBase-R PCS and 10 Gigabit PMA in order to connect with SFP+ to 10GBase-SR / / 1000Base-SX / 10GBase-LR and SFP+ Direct Attach
10GBase-SR SFP+: IEEE Standard / Network topology:	Fiber 10Gigabit Ethernet, 10GBASE-SR (850nM LAN PHY)
10GBase-SR SFP+: Data Transfer Rate:	10.3125GBd
10GBase-SR SFP+: Cables and Operating distance Up to:	62.5um, 160MHz/Km 26m 62.5um, (OM1)200MHz/Km 33m 50um, 400MHz/Km 66m 50um, (OM2)500 MHz/Km 82m 50um, (OM3)2000MHz/Km 300m
10GBase-LR SFP+: IEEE Standard / Network topology:	Fiber 10Gigabit Ethernet, 10GBASE-LR (1310nM LAN PHY)
10GBase-LR SFP+: Data Transfer Rate:	10.3125GBd
10GBase-LR SFP+: Cables and Operating distance Up to:	Single-Mode: 10000m at 9um
10GSFP+Cu : IEEE Standard / Network topology:	Copper 10Gigabit Ethernet, 10GSFP+Cu (Direct Attach)
1000Base-SX / 10GBase-SR	Fiber Gigabit Ethernet, 1000Base-SX (850nM LAN PHY)

SFP+: **IEEE Standard / Network topology:**	Fiber 10Gigabit Ethernet, 10GBASE-SR (850nM LAN PHY)
1000Base-SX / 10GBase-SR SFP+: **Data Transfer Rate:**	10.3125GBd / 1.25GBd
10000Base-SX / 10GBase-SR SFP+: **Cables and Operating distance Up to:**	**10000Base-SX:** 62.5um, 160MHz/Km 220m 62.5um, (OM1)200MHz/Km 275m 50um, 400MHz/Km 500m 50um, (OM2)500 MHz/Km 550m 50um, (OM3)2000MHz/Km >550m **10GBase-SR:** 62.5um, 160MHz/Km 26m 62.5um, (OM1)200MHz/Km 33m 50um, 400MHz/Km 66m 50um, (OM2)500 MHz/Km 82m 50um, (OM3)2000MHz/Km 300m
1000Base-LX / 10GBase-LR SFP+: **IEEE Standard / Network topology:**	Fiber Gigabit Ethernet, 1000Base-LX (1310nM LAN PHY) Fiber 10Gigabit Ethernet, 10GBASE-LR (1310nM LAN PHY)
1000Base-LX / 10GBase-LR SFP+: **Data Transfer Rate:**	10.3125GBd / 1.25GBd
1000Base-LX / 10GBase-LR SFP+: **Cables and Operating distance Up to:**	**10000Base-LX:** Single-Mode: 5000m at 9um **10GBase-LR:** Single-Mode: 10000m at 9um
1000Base-T SFP: **IEEE Standard / Network topology:**	1000BASE-T Ethernet
-SRD: Fiber 1000BASE-SX / 10GBASE-SR Technical Specifications:	
Optical Output Power (1G):	Minimum: -9.5 dBm
Optical Receive Sensitivity	Maximum: -17 dBm

(1G):	
Maximum Input Power (1G):	Maximum: +0.5dBm
Output Transmit Power (10G):	Minimum: -5 dBm
Optical Receive Sensitivity (10G):	Maximum: -11.1 dBm
Maximum Input Power (10G):	Maximum: +0.5dBm
-LRD: Fiber 1000BASE-LX / 10GBASE-LR Technical Specifications:	
Optical Output Power (1G):	Minimum: -11 dBm
Optical Receive Sensitivity (1G):	Maximum: -19 dBm
Maximum Input Power (1G):	Maximum: +0.5dBm
Output Transmit Power (10G):	Minimum: -8.2 dBm
Optical Receive Sensitivity (10G):	Maximum: -12.5 dBm
Maximum Input Power (10G):	Maximum: +0.5dBm
Operating Systems Support	
Operating system support:	Windows Linux FreeBSD VMware
General Technical Specifications	
Interface Standard:	PCI-Express Base Specification Revision 3.0 (8 GTs)
Board Size:	Low profile short add-in card: 145.542mm X 64.389mm (5.730”X 2.535”)
PCI Express Card Type:	X8 Lane
On Board Connector Voltage:	+12V +/-8%

PCI Connector:	X8 Lane
Controllers:	Intel X710DA2
Holder:	Metal Bracket
Operating Temperature:	0°C – 45°C (32°F – 113°F)
Storage:	-40°C–65°C (-40°F–149°F)
EMC Certifications:	FCC 47CFR Part 15:2013, Subpart B Class B Conducted emissions Radiated emissions EN 55022: 2010, Class B Conducted disturbance at mains terminals Conducted disturbance at telecommunication port Radiated disturbance EN 61000-3-2: 2006+A1(09)+A2(09) Harmonic current emissions EN 61000-3-3: 2008 Voltage fluctuations and flicker EN 55024: 2010 Immunity to electrostatic discharge (ESD) Radiated immunity to radio frequency electromagnetic field Conducted immunity to electrical fast transients / bursts (EFT/ B) Conducted immunity to voltage surges Conducted immunity to disturbances induced by radio frequency field Conducted immunity to voltage dips and short interruptions
LEDs	
LEDs:	(2) LEDs per port Link Speed: Turns on Green 10G Link. Turn on Yellow on 1G Link Link/Act : Turns on link (Green), Blinks on activity (Green)
LEDs location:	LEDs are located on the PCB, visible via holes in the metal bracket
Connectors:	(2) SFP+ cage

Order Information

P/N	Description	Notes
PE310G2i71-XR	Dual Port SFP+ 10 Gigabit Ethernet PCI Express Server Adapter	X8 Gen3 , Low Profile, Based on Intel X710-AM1, Support Direct Attached Copper cable, Support Silicom SFP+ approved transceiver. RoHS compliant
PE310G2i71-SRD	Dual Port Fiber (SX/SR) 1/10 Gigabit Ethernet PCI Express Server Adapter	X8 Gen3, Based on Intel X710-AM1, Low-profile, on board support for Fiber SX/SR, RoHS compliant
PE310G2i71-LRD	Dual Port Fiber (LX/LR) 1/10 Gigabit Ethernet PCI Express Server Adapter	X8 Gen3, Based on Intel X710-AM1, Low-profile, on board support for Fiber LX/LR, RoHS compliant

Model P/N -LP

-LP: Assemble Low Profile Metal Bracket

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