



PE310G4I71L

Quad Port Fiber SFP+ 10 Gigabit Ethernet PCI Express Server Adapter Intel® FTXL710AM1 Based

Product Description

Silicom's 10 Gigabit Ethernet PCI Express server adapters are designed for Servers and high-end appliances.

The Silicom 10 Gigabit Ethernet PCI Express Server adapters 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 XL710 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 Server adapters 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 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 SFP+: IEEE Standard / Network	Fiber Gigabit Ethernet, 1000Base-SX (850nM LAN PHY) Fiber 10Gigabit Ethernet, 10GBASE-SR (850nM LAN PHY)

topology:	
1000Base-SX / 10GBase-SR SFP+: Data Transfer Rate :	10.3125GBd / 1.25GBd
10000Base-SX / 10GBase-SR SFP+: Cables and Operating distance Up to:	<p>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</p> <p>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</p>
1000Base-LX / 10GBase-LR SFP+: IEEE Standard / Network topology:	Fiber Gigabit Ethernet, 1000Base-LX (1310nm LAN) 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:	<p>10000Base-LX: Single-Mode: 5000m at 9um</p> <p>10GBase-LR: Single-Mode: 10000m at 9um</p>
-SRD: Fiber 1000BASE-SX / 10GBASE-SR Technical Specifications:	
Optical Output Power (1G):	Typical: -2.39 dBm Minimum: -9.5 dBm
Optical Receive Sensitivity (1G):	Typical: -14.32 dBm Maximum: -17 dBm
Maximum Input Power (1G):	Maximum: +0.5dBm
Output Transmit Power (10G):	Typical: -2.39 dBm

	Minimum: -5 dBm
Optical Receive Sensitivity (10G):	Typical: -14.32 dBm Maximum: -11.1 dBm
Maximum Input Power (10G):	Maximum: +0.5dBm
-LRD: Fiber 1000BASE-LX / 10GBASE-LR Technical Specifications:	
Optical Output Power (1G):	Typical: -1.77 dBm Minimum: -11 dBm
Optical Receive Sensitivity (1G):	Typical: -17 dBm Maximum: -19 dBm
Maximum Input Power (1G):	Maximum: +0.5dBm
Output Transmit Power (10G):	Typical: -1.77 dBm Minimum: -8.2 dBm
Optical Receive Sensitivity (10G):	Typical: -17 dBm 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: 165.15mm X 64.39mm (6.502"X 2.535")
PCI Express Card Type:	X8 Lane
On Board Connector Voltage	+12V +/-8%
PCI Connector:	X8 Lane

Controller:	Intel FTXL710AM1
Holder:	Metal Bracket
Weight:	240 g
Power Consumption (SR):	6W, 0.5A at 12V: Typical all ports operate at 10Gb/s, 6W, 0.5A at 12V: Typical No link at all ports
Power Consumption (LR):	6.24W, 0.52A at 12V: Typical all ports operate at 10Gb/s, 6.24W, 0.52A at 12V: Typical No link at all ports
Operating Temperature:	0°C – 45°C (32°F – 113°F)
Air Flow Requirements:	200 ft./min
Storage:	-40°C–65°C (-40°F–149°F)
EMC Certifications:	<p>FCC Part 15, Subpart B Class A</p> <p>Conducted Emissions</p> <p>Radiated Emissions</p> <p>CE EN 55022: 1998 Class A Amendments A1: 2000; A2: 2003</p> <p>Conducted Emissions</p> <p>Radiated Emissions</p> <p>CE EN 55024: 1998 Amendements A1: 2000; A2: 2003</p> <p>Immunity for ITE Amendment A1: 2001</p> <p>CE EN 61000-3-2 2000, Class A</p> <p>Harmonic Current Emissions</p> <p>CE EN 61000 3-3 1995, Amendement A1: 2001</p> <p>Voltage Fluctuations and Flicker</p> <p>CE IEC 6100-4-2: 1995</p> <p>ESD Air Discharge 8kV. Contact Discharge 4kV.</p> <p>CE IEC 6100-4-3:1995</p> <p>Radiated Immunity (80-1000Mhz), 3V/m 80% A.M. by 1kHz</p> <p>CE IEC 6100-4-4:1995</p> <p>EFT/B: Immunity to electrical fast transients 1kV Power Leads, 0.5Kv Signals Leads</p> <p>CE IEC 6100-4-5:1995</p> <p>Immunity to conductive surges COM Mode; 2kV, Dif. Mode 1kV</p> <p>CE IEC 6100-4-6:1996</p> <p>Conducted immunity (0.15-80 MHz) 3VRMS 80% A.M. By 1kHz</p> <p>CE IEC 6100-4-11:1994</p>

	Voltage Dips and Short Interruptions V reduce >95%, 30% >95% Duration 0.5per, 25per, 250per
MTBF*:	36 years * According to Telcordia SR-332 Issue 2. Environmental condition – GB (Ground, Fixed, and Controlled). Ambient temperature 40°C
LEDs	
LEDs:	(2) LEDs per port Upper LED : Link Speed: Turns on Blue 10G Link. Turns on Yellow 1G Link Lower LED: 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. Each Green Link/Act and LED and Blue Link Speed LED is located above its own SFP connector port by light pipes
Connectors:	(4) SFP+ cage

Order Information

P/N	Description	Notes
PE310G4i71L-XR	Quad Port SFP+ 10 Gigabit Ethernet PCI Express Server Adapter	X8 Gen3 , Low Profile, Based on Intel XL710, Support Direct Attached Copper cable, Support Silicom SFP+ approved transceiver. RoHS compliant
PE310G4i71L-SRD	Quad Port Fiber (SX/SR) 1/10 Gigabit Ethernet PCI Express Server Adapter	X8 Gen3, Based on Intel XL710, Low-profile, on board support for Fiber SX/SR, RoHS compliant
PE310G4i71L-LRD	Quad Port Fiber (SX/SR) 1/10 Gigabit Ethernet PCI Express Server Adapter	X8 Gen3, Based on Intel XL710, Low-profile, on board support for Fiber LX/LR, RoHS compliant
PE310G4i71LB-XR	Quad Port SFP+ 10 Gigabit Ethernet PCI Express Server Adapter	X8 Gen3 , Low Profile, with lower I/O metal bracket opening, Based on Intel XL710, Support Direct Attached Copper cable, Support Silicom SFP+ approved transceiver. RoHS compliant

PE310G4i71LB-SRD	Quad Port Fiber (SX/SR) 1/10 Gigabit Ethernet PCI Express Server Adapter	X8 Gen3, Low Profile, with lower I/O metal bracket opening, Based on Intel XL710, Low-profile, on board support for Fiber SX/SR, RoHS compliant
PE310G4i71LB-LRD	Quad Port Fiber (SX/SR) 1/10 Gigabit Ethernet PCI Express Server Adapter	X8 Gen3, Low Profile, with lower I/O metal bracket opening, Based on Intel XL710, Low-profile, on board support for Fiber LX/LR, RoHS compliant

Order information: Model P/N -LP /

-LP: Assemble Low Profile Metal Bracket

1V9