



PE31640G2QI71 Server Adapter

Dual Port Fiber 40G / 8x10G Ethernet PCI Express Server Adapter Intel® XL710 Based

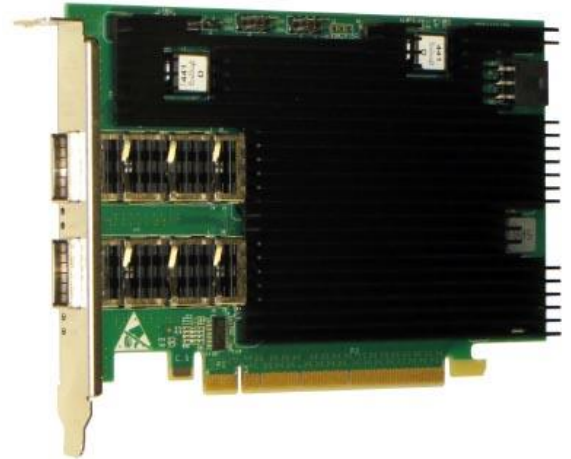
Product Description

Silicom's Dual 40G / Octal 10G Ethernet PCI Express server adapters are designed for Servers and high-end appliances. The Silicom Dual 40 Gigabit Ethernet PCI Express Server adapters offer simple integration into any PCI Express X16 to Dual 40G / Octal 10G (with breakout cable) Networks. The performance is optimized so that system I/O is not the bottleneck in high-performance networking applications.



The Silicom Dual 40G / Octal 10G Gigabit Ethernet PCI Express server adapters are based on Avago PCI Express Switch and Dual Intel XL710BM1 Ethernet controllers, each with 40 Gigabit fully integrated Gigabit Ethernet Media Access Control (MAC) and XLPPI 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 Dual 40G / Octal 10G 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

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 X16 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

-QX4: QSFP+ 40Gigabit Ethernet Technical Specifications Adapters:

QSFP+ (Quad Small Form-factor Pluggable) supports:	XLPPi interfaces supports 40GBase-R PCS and 40 Gigabit PMA in order to connect with QSFP+ to 40GBase-SR4 / 40GBase-LR4
IEEE Standard / Network topology: with 40GBase-SR4 QSFP+	Fiber 40Gigabit Ethernet, 40GBASE-SR4 (850nm LAN PHY).
IEEE Standard / Network topology: with 40GBase-LR4 QSFP+	Fiber 40Gigabit Ethernet, 40GBASE-LR4 (1310nm LAN PHY)

– QS41: Fiber 40GBASE-SR4 Ethernet Technical Specifications:

IEEE Standard / Network topology:	Fiber 40Gigabit Ethernet, 40GBASE-SR4 (840 to 860 nm LAN PHY). IEEE 802.3ba
Data Transfer Rate:	10.5 GBd per lane

Cables and Operating distance:	50um, (OM3) 1500 MHz*Km, 0.5 to 100 m 50um, (OM4) 3500 MHz*Km, 0.5 to 150 m
Output Transmit Power:	Maximum: 2.4 dBm per lane Minimum: -7.6 dBm per lane
Optical Receive Sensitivity:	Minimum: -5.4 dBm
Maximum Input Power:	Maximum: 2.4 dBm
– QS43: Fiber 40GBASE-SR4 Ethernet Technical Specifications:	
IEEE Standard / Network topology:	Fiber 40Gigabit Ethernet, 40GBASE-SR4 (840 to 860 nm LAN PHY). IEEE 802.3ba
Data Transfer Rate:	10.5 GBd per lane
Cables and Operating distance:	50um, (OM3) 1500 MHz*Km, 0.5 to 300 m 50um, (OM4) 3500 MHz*Km, 0.5 to 400 m
Output Transmit Power:	Maximum: 0.5 dBm per lane Minimum: -7.5 dBm per lane
Optical Receive Sensitivity:	Minimum -7.5dBm
Maximum Input Power:	Maximum: 2.4 dBm
– QL4: Fiber 40GBASE-LR4 Ethernet Technical Specifications:	
IEEE Standard / Network topology:	Fiber 40Gigabit Ethernet, 40GBASE-LR4 (1264.5nm – 1277.5nm ; 1284.5nm – 1297.5nm ; 1304.5nm – 1317.5nm ; 1324.5nm – 1337.5nm LAN PHY). IEEE 802.3ba
Data Transfer Rate:	10.3125 GBd per lane
Cables and Operating distance:	SMF-28, 10Km
Output Transmit Power:	Maximum: 2.3 dBm per lane Minimum: -7.0dBm per lane

Optical Receive Sensitivity:	Maximum: -9.6 dBm
Maximum Input Power:	Maximum: 2.3 dBm
Operating Systems Support	
Operating system support:	Windows Linux
General Technical Specifications	
Interface Standard:	PCI-Express Base Specification Revision 3.0 (8 GT/sec)
Board Size:	167.6mm X 111.17mm(6.600" X 4.377") PCB thickness is 0.062 inch
PCI Express Card Type:	X16 Lane
PCI Express Voltage	+12V +- 8%
PCI Connector:	X16 Lane
Controller:	(2) Intel XL710BM1
Holder:	Metal Bracket
Weight:	270 g without Transceivers 350 g with Transceivers
Power Consumption –QX4:	14.16 W, 1.18 A at 12V: Typical No link at all ports
Power Consumption –QS43:	16.08 W, 1.34A at 12V: Typical all ports operate at 40Gb/s
Power Consumption –QS41:	16.2 W, 1.35A at 12V: Typical all ports operate at 40Gb/s
Power Consumption –QL4:	18.6 W, 1.55A at 12V: Typical all ports operate at 40Gb/s
Operating Humidity:	0%–90%, non-condensing
Operating Temperature:	0°C – 45°C (32°F – 113°F)
Storage:	-40°C–65°C (-40°F–149°F)

<p>Regulation:</p>	<p>FCC 47CFR Part 15:2016, Subpart B Class B</p> <p>Conducted emissions</p> <p>Radiated emissions</p> <p>VCCI-CISPR 32: 2016, Class B</p> <p>Conducted emissions</p> <p>Radiated emissions</p> <p>EN 55032: 2012+ AC(13), Class B</p> <p>Conducted emissions</p> <p>Radiated emissions</p> <p>EN 61000-3-2: 2014</p> <p>Harmonic current emissions</p> <p>EN 61000-3-3: 2013</p> <p>Voltage fluctuations and flicker</p> <p>EN 55024: 2010</p> <p>Immunity to electrostatic discharge (ESD)</p> <p>Radiated immunity to radio frequency electromagnetic field</p> <p>Conducted immunity to electrical fast transients / bursts (EFT/ B)</p> <p>Conducted immunity to voltage surges</p> <p>Conducted immunity to disturbances induced by radio frequency field</p> <p>Conducted immunity to voltage dips and short interruptions</p>
<p>MTBF*:</p>	<p>Without Transceivers 115 (Years)</p> <p>With Transceivers 63 (Years)</p> <p>Operating conditions: Environment: GB, Temperature: 40.00 °C</p> <p>Current mode: Operating</p> <p>FR Units: FIT</p> <p>Default prediction Method: Telcordia Issue 3</p>
<p>LEDs</p>	
<p>LEDs:</p>	<p>Each Port has 2 LEDs to indicate link status and speed.</p> <p>Speed: Physical link Speed:</p> <p>Green stay on – physical link on with 40G Speed</p> <p>Yellow stay on – physical link on with 10G Speed *</p> <p>Off – physical link off.</p> <p>Link /ACT: Logic Link/Activity, Green</p> <p>Green stay on – logic link up, no activity</p> <p>Green blinking – logic link up, activity</p> <p>Off – logic link off</p> <p>* Yellow 10G Speed LED turns on for at least one 10G Physical Link on port</p>

LEDs location:	LEDs are located on the PCB, visible via lightpipe in the metal bracket holder
Connectors:	(2) QSFP+ cage: MOLEX, P/N 75586-0010, or compatible.

Order Information

P/N	Description	Notes
PE31640G2QI71-QS41	Dual Fiber (SR4) 40G / 8x10G Ethernet PCI Express Server Adapter	X16 Gen3, Based on Intel XL710BM1, on board support for Fiber SR4 up to length 100m on OM3 MMF, RoHS compliant
PE31640G2QI71-QS43	Dual Fiber (SR4) 40G / 8x10G Ethernet PCI Express Server Adapter	X16 Gen3, Based on Intel XL710BM1, on board support for Fiber SR4 300m on OM3 MMF, RoHS compliant
PE31640G2QI71-QX4	Dual QSFP+ 40G / 8x10G Ethernet PCI Express Server Adapter	X16 Gen3, Based on Intel XL710BM1, on board support for QSFP+, RoHS compliant
PE31640G2Qi71-QL4	Dual Fiber (LR4) 40G / 8x10G Ethernet PCI Express Server Adapter	X16 Gen3, Based on Intel XL710BM1, on board support for Fiber LR4, RoHS compliant
Amphenol 603020005(5m)	QSFP to QSFP Copper DA cables	
Amphenol 610640002(2m)	QSFP to (4) SFP+ Copper DA cables	
Amphenol 610640005 (5m)	QSFP to (4) SFP+ Copper DA cables	
Fibernet FIB8GF9UU0020000050E(2m)	FO cable MTP to (4) LC OM4	

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