

PE340G1Qi71

Fiber 40 Gigabit Ethernet PCI Express Server Adapter

Description

Silicom's 40 Gigabit Ethernet PCI Express server adapters are designed for Servers and high-end appliances. The Silicom 40 Gigabit Ethernet PCI Express Server adapters offer simple integration into any PCI Express X8 to 40Gigabit Networks. The performance is optimized so that system I/O is not the bottleneck in high-performance networking applications.

The Silicom 40 Gigabit Ethernet PCI Express server adapters are based on Intel XL710AM1 Ethernet controller with two 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 40 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 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

QX4: QSFP+ 40Gigabit Ethernet Technical Specifications Adapters:

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| 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 / 40G Direct Attach Cable |
| 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:

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| 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) 2000 MHz*Km, 0.5 to 100 m 50um, (OM4) 4700 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:

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| 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:

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| IEEE Standard / Network topology: | Fiber 40Gigabit Ethernet, 40GBASE-LR4 (1264.5nm – 1277.5nm ; 1284.5nm – 1297.5nm ; |
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| | 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 64.38mm(6.600" X 2.535") PCB thickness is 0.062 inch |
| PCI Express Card Type: | X8 Lane |
| PCI Express Voltage | +12V +- 8% |
| PCI Connector: | X8 Lane |
| Controller: | Intel XL710AM1 |
| Holder: | Metal Bracket |
| Weight: | 130gr (4.568 oz) |
| Power Consumption –QX4: | 3.600W |
| Power Consumption – QS43: | 4.680W |
| Power Consumption –QL4: | 6.600W |
| 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) |
| EMC Certifications: | FCC Part 15, Subpart B Class A Conducted Emissions Radiated Emissions CE EN 55022: 1998 Class A Amendments A1: 2000; A2: 2003 Conducted Emissions Radiated Emissions CE EN 55024: 1998 Amendments A1: 2000; A2: 2003 Immunity for ITE Amendment A1: 2001 CE EN 61000-3-2 2000, Class A Harmonic Current Emissions CE EN 61000 3-3 1995, Amendment A1: 2001 Voltage Fluctuations and Flicker |

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|----------------|---|
| | <p>CE IEC 6100-4-2: 1995 ESD Air Discharge 8kV. Contact Discharge 4kV. CE IEC 6100-4-3:1995 Radiated Immunity (80-1000Mhz), 3V/m 80% A.M. by 1kHz CE IEC 6100-4-4:1995 EFT/B: Immunity to electrical fast transients 1kV Power Leads, 0.5Kv Signals Leads CE IEC 6100-4-5:1995 Immunity to conductive surges COM Mode; 2kV, Dif. Mode 1kV CE IEC 6100-4-6:1996 Conducted immunity (0.15-80 MHz) 3VRMS 80% A.M. By 1kHz CE IEC 6100-4-11:1994 Voltage Dips and Short Interruptions V reduc >95%, 30% >95% Duration 0.5per, 25per, 250per</p> |
| MTBF*: | <p>201 (Years) *According to Telcordia SR-332 Issue 1 Environmental condition – G_B (Ground, Fixed, Controlled). Ambient temperature - 25°C. Temperature rise of 10°C above the system ambient temperature was assumed for the cards components</p> |
| LEDs | |
| LEDs: | <p>Link/Act 40G: Turns on Green , Blink on Activity (KINGBRIGHT, P/N KPHHS-1005CGCK, or compatible. I_d : 574 nm)</p> |
| LEDs location: | <p>LED is located on the PCB, visible via lightpipe holes in the metal bracket holder</p> |
| Connectors: | <p>(1) QSFP+ cage: MOLEX, P/N 75586-0010, or compatible.</p> |

Order Information

| P/N | Description | Notes |
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| PE340G1Qi71-QS41 | Fiber (SR4) 40 Gigabit Ethernet PCI Express Server Adapter | X8 Gen3, Based on Intel XL710AM1, on board support for Fiber SR4 up to length 100m on OM3 MMF, RoHS compliant |
| PE340G1Qi71-QS43 | Fiber (SR4) 40 Gigabit Ethernet PCI Express Server Adapter | X8 Gen3, Based on Intel XL710AM1, on board support for Fiber SR4 300m on OM3 MMF, RoHS compliant |
| PE340G1Qi71A-QL4 | Fiber (LR4) 40 Gigabit Ethernet PCI Express Server Adapter | X8 Gen3, Based on Intel XL710AM1, on board support for Fiber LR4, RoHS compliant |
| PE340G1Qi71-QX4 | QSFP+ 40 Gigabit Ethernet PCI Express Server Adapter | X8 Gen3, Based on Intel XL710AM1, on board support for QSFP+, RoHS compliant |
| PE340G1Qi71A-QX4 | QSFP+ 40 Gigabit Ethernet PCI Express Server Adapter | X8 Gen3, Based on Intel XL710AM1, on board support for QSFP+ LR4, RoHS compliant |

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| PE340G1Qi71-QX410 | QSFP+40G to 4x SFP+10 Gigabit Ethernet PCI Express Server Adapter | X8 Gen3, Based on Intel XL710AM1, on board support for SR4/DA QSFP+, RoHS compliant |
| PE340G1Qi71-QS410 | QSFP+ 40G to 4x SFP+ 10 Gigabit Ethernet PCI Express Server Adapter | X8 Gen3, Based on Intel XL710AM1, on board support for Fiber SR4 break-out cable, RoHS compliant |
| Amphenol 603020002(2m) | QSFP to QSFP Copper DA cables | |
| 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 | |

Model P/N -LP /
-LP: Assemble Low Profile Metal Bracket

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