M1E2G4SPi35

Quad Port SFP Gigabit Ethernet Express Module Server Adapter

Product Description

Silicom's Quad Port Copper Gigabit Ethernet ExpressModule server adapter is a PCI-Express X4 SFP Gigabit Ethernet network interface card that can fit into a 3.5" HD form factor.

The Silicom Quad Port SFP ExpressModule is the front I/O module in Silicom Server to Network Appliance Converter (SETAC) architecture.

Silicom's Quad Port Copper Gigabit Ethernet ExpressModule server adapters are based on Intel i350 Ethernet controller with quad fully integrated Gigabit Ethernet Media Access Control (MAC) and PHY.

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.

Silicom's Quad Port SFP Gigabit Ethernet ExpressModule 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:

- 8 Transmit and 8 Receive queues per port
- Up to 8 queues of Receive Side Scaling (RSS) minimize CPU utilization across multiple processor systems
- Support PCI-SIG Single-Root I/O virtualization Rev 1.1.
- Support for up to 8 virtual function (VFs)
- Partial replication of PCI Configuration space
- Support for 8 pools (single queue) of virtual machine Device Queues (VMDq) per port
- Support Direct Cache Access (DCA)
- Support Intel I/O Acceleration Technology v3.0
- TSO interleaving for reduced latency
- Minimized number of device I/O interrupts using MSI and MSI-X
- UDP, TCP and IP checksum offload

- UDP and TCP transmit segmentation offload (TSO). machine
- SCTP receive and transmit checksum offload
- Packet interrupt coalescing timers (packet timers) and absolute-delay interrupt timers for both transmit and receive operation
- EEE (IEEE 802.3az) for reduced power consumption during low link utilization periods

SFP Gigabit Ethernet:

- Gigabit Ethernet Adapters with SFP cage support:
- 1000Base-LX Fiber Gigabit Ethernet with 1000Base-LX SFP transceiver
- 1000Base-SX Fiber Gigabit Ethernet with 1000Base-SX SFP transceiver
- SFP (1000Mb/s) Copper Gigabit Ethernet with SFP transceiver
- Small Form Factor Pluggable (SFP) Cage for SFP LC connectors
- 2PortLink synchronization
- Optional SGMII mode (future support)

Common Key features:

- PCI Express ExpressModule Electromechanical Specification Revision 1.0
- Support PCI Express Base Specification 2.1 (5 GTs)
- High performance, reliability, and low power use in Intel i350 Quad integrated MAC + PHY and SERDES chip Controllers
- Ultra deep, packet buffer per channel lowers CPU utilization
- Hardware acceleration that can offload tasks from the host processor. The Controllers can offload TCP/UDP/IP checksum calculations and TCP segmentation
- Server class reliability, availability and performance features:
- Link Aggregation and Load Balancing
- Priority queuing –802.1p layer 2 priority encoding
- Virtual LANs –802.1q VLAN tagging.
- Jumbo Frame (9.5KB)
- 802.x flow control
- Multicast/ broadcast Packet replication
- Supports Vital Product Data (VPD)
- LEDs indicators for link/Activity Mode status.
- Hot Plug not supported. Can be supported by assembly change

Technical Specifications

SFP Gigabit Ethernet Technical Specifications – (SFP) Adapters:	
SFP (Small Form Factor Pluggable) supports:	1Gb SERDES interfaces supports 1000Base-X in order to connect with SFP to 1000Base-SX / 1000Base-LX / 1000Base-T SFP transceivers.
IEEE Standard / Network topology: with 1000Base-T SFP	Gigabit Ethernet (1000Mb/s only), 1000Base-T
IEEE Standard / Network topology: with 1000Base-SX SFP	Fiber Gigabit Ethernet, 1000Base-SX (850nM)
IEEE Standard / Network topology: with 1000Base-LX SFP	Fiber Gigabit Ethernet, 1000Base-LX (1310nM)
SFP Gigabit Ethernet Technical Specifications (SFP 1000Base-SX) Adapters:	
IEEE Standard / Network topology: with 1000Base-SX SFP	Fiber Gigabit Ethernet, 1000Base-SX (850nM)
Cables and Operating distance:	Multimode fiber: 220m at 62.5 um 550m at 50 um
Optical Output Power:	Minimum: -9 dBm
Optical Receive Sensitivity:	Maximum: -20 dBm
SFP Gigabit Ethernet Technical Specifications (SFP 1000Base-LX) Adapters:	
IEEE Standard / Network topology: with 1000Base-LX SFP	Fiber Gigabit Ethernet, 1000Base-LX (1310nM)
Cables and Operating distance:	Single-Mode: 5000m at 9um Multimode fiber: 550m at 50 um 550m at 62.5 um
Optical Output Power:	Minimum: -9.5 dBm

Optical Receive Sensitivity:	Maximum: -20 dBm
Operating Systems Support	
Operating system support:	Windows Linux VMware
General Technical Specifications	
Interface Standard:	PCI ExpressModule Specification revision 1.0 Silicom SETAC PCI-Express Base Specification Revision 2.1 (5 GTs)
Board Size:	168.2mm x 98mm (6.62”X3.858”)
PCI Express Card Type:	X8
PCI Voltage:	+12V ± 15%
PCI Express Connector:	Gold Finger: x8
Controller:	Intel i350AM4
Holder:	Not included.
I/O:	4 x SFP located on edge of the board
Operating Temperature:	-5°C – 40°C (23°F – 104°F)
Storage Temperature:	-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 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
LEDs	
LEDs:	(2) LEDs per port Left LED: Link/Act : Turns on link (Green), Blinks on activity (Green) Right LED : Link Speed: Turns on Yellow 1G Link. Turns on Green 100M Link
LEDs location:	LEDs are located on the PCB, visible via holes in the metal bracket. Each Green Link/Act and Link Speed LEDs is located above their own SFP connector port by light pipes
Connectors:	Small Form Factor Pluggable (SFP) Cage (4X1)

Order Information

P/N	Description	Notes
M1E2G4SPI35-R	Quad Port SFP Gigabit Ethernet ExpressModule Server Adapter	X4, Based on Intel i350AM4, PCI-E ExpressModule, RoHS compliant
M1E2G4SPI35-SX-R	Quad Port SFP (SX) Gigabit Ethernet ExpressModule Server Adapter	X4, Based on Intel i350AM4, PCI-E ExpressModule, RoHS compliant
M1E2G4SPI35-LX-R	Quad Port SFP (LX) Gigabit Ethernet ExpressModule Server Adapter	X4, Based on Intel i350AM4, PCI-E ExpressModule, RoHS compliant

Model P/N

-R: RoHS Compliant / Lead free adapter

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