LSI LOGIC

Cost-Effective Serial Attached SCSI (SAS) Host Bus Adapter (HBA) Increases Performance and Reliability

Key Advantages

- Integrated RAID: LSI Logic RAID avoids additional host CPU overhead
- Scalablilty: addresses up to 128 SAS/SATA devices using expanders
- Speed: 2.5Gb/s PCI Express with 3Gb/s per port SAS interconnect
- Complete Solution: kit includes all necessary cables and brackets
- Market Leader: LSI SAS powers 80% of SAS worldwide

Most Economical SAS/SATA HBA in the Market Today

The LSISAS3041E-R card offers leading-edge SAS and SATA RAID and non-RAID data off-load at a fraction of the cost for competing products. The low-cost HBA supports medium capacity internal server storage applications by connecting a 4-lane 2.5Gb/s PCI Express bus with 4 SAS/SATA ports through SATA 1x connectors. Cost advantages over parallel SCSI are realized by optimizing the HDD array between SAS and SATA drive types, utilizing the lower-cost SATA drives for backup while using the feature-rich SAS drives for mission-critical applications.

Superior LSI Logic SAS Integrated RAID Performance

As the performance leader in SCSI/SAS controllers, the LSISAS3041E-R leverages the LSI SAS1064E controller ASIC's advanced Fusion-MPT™ architecture. While other SAS cards drive large RAID software stacks between the host CPU and controller, the LSISAS3041E-R HBA utilizes the embedded CPU in the LSISAS1064E ASIC to perform integrated RAID 0, 1, 1E and 10E operations. By avoiding the PCI-X bus traffic and reducing RAID code overhead, the LSISAS3041E-R is first in READ/WRITE operation execution.

PCI Express and SAS Connectivity from the Serial IO Experts

The LSISAS3442E-R is a part of the first generation of fully serialized Direct Attached Storage (DAS) controllers. Successful implementation of these serial adapters is best served with supplier experience and knowhow. Having a supplier who fully understands the physical, electrical and protocol requirements of each new serial standard will reduce the time for system bring-up and offer greater flexibility in system topography.

LSI has supplied leading edge serial technology to systems throughout the world for over 6 generations, making LSI the most experienced enabler of serial interconnect for storage in the world. Integrators can be assured that their LSI adapter is providing the most advanced and robust serial technology available.

Operating System Support

The LSISAS3041E-R HBA supports all key 32-bit and 64-bit versions of Microsoft Windows, Linux, Solaris, Netware as well as the x86, IA64, SPARC, AMD64 and EM64T system architectures. All OS drivers are backed by extensive testing and validation to ensure optimum system performance. For a list of the most current supported drivers, visit *www.lsi.com/support*.

APPLICATIONS
- High-performance workstations
- Mid to high-end servers
- Internal connections
- 1U/2U rack servers

TYPICAL USES
- Direct-attach internal SAS/SATA HDDs
- Internal JBOD enclosures
- Mixed SAS/SATA RAID
- Mission-critical applications running from SAS drives

FEATURES
- 3Gb/s per port
- 4 internal SATA x1 connectors
- Integrated RAID 0, 1, 1E and 10E
- MD-2 small form-factor design
- 4-lane 2.5Gb/s PCI Express
- Allows more than 122 SAS or SATA end-point devices
- Fusion-MPT architecture providing over 140,000 I/Os per second
- Supports all major OSes

FUSION-MPT
MESSAGE PASSING TECHNOLOGY

MYStorage
management software

Serial Attached SCSI

SERIAL ATA

PCI EXPRESS™

LSI LOGIC®

LSISAS3041E-R
3Gb/s SAS EIGHT-PORT HOST BUS ADAPTER

TECHNICAL SPECIFICATIONS

PCI Bus	4-lane, 2.5Gb/s PCI Express	
PCI Modes	Bus master DMA	
PCI Data Burst Transfer Rates	250MB/s per lane half duplex 500MB/s per lane full duplex 1000MB/s 4-lane half duplex	
SAS Bandwidths	**Half Duplex** Single lane – 300MB/s Wide port (2 lanes) – 600MB/s Wide port (3 lanes) – 900MB/s Wide port (4 lanes) – 1200MB/s	**Full Duplex** Single SAS lane – 600MB/s Wide port (2 lanes) – 1200MB/s
PCI Voltage/Card Type	+3.3V ±0.3V add-in card	
PCI Form Factor	6.6" x 2.5" (MD2 low-profile)	
PCI Power	7.5W	
Bracket	Full height and low-profile	
PCI Certification Level	PCI Express 1.0a	
SAS Bus	Four 3Gp/s SAS/SATA ports	
SAS Controller ASIC	LSISAS1064E	
Connectors	Four SATA x 1 internal connectors	
LED Indicators	**Internal Activity, per Phy** 4	**Internal Fault, per Phy** 4
Integrated RAID Levels	Integrated RAID 0, 1, 1E and 10E	
Max Number of Physical Devices	Non-RAID Integrated RAID (IR) IR RAID 0 IR RAID 1 IR RAID 1E	122 10 spread across 2 volumes 8 per volume 2 per volume plus hotspare 8 per volume
Environments	**Operating** 0°C to 60°C 5 to 90% non-condensing	**Storage** -45°C to +105°C 5 to 90% non-condensing
MTBF	>200,000 hours	
Compliances	EMC: Class B-US (CFR 47, P15B); Canada (ICES-003); Japan (V-3/02.04) Europe (EN55022/EN55024); Australia/New Zealand (AS/NZS 3548); Safety: EN60950	

Software
  MyStorage
  OS Support
	Drive monitoring, HBA management, drive topology
	• Microsoft™ Windows® 2000, Server 2003 32-bit and 64-bit (x86 and AMD64, XP)
	• Red Hat® Linux® RHEL 3
	• Novell® NetWare® 5.1 and 6.5
	• SusSE® Linux®/SLES
	• Sun SPARC Solaris 2.6 thru 2.10	

Support
  Ordering Information
 	
  Warranty
  Technical Support
	LSISAS3041E-R Kit – P/N: LSI00112
	LSISAS3041E-R 5-pack – P/N: LSI00113
	3 years, advanced replacement option
	Free technical support at _www.lsi.com/support_	

Warranty

For more than 15 years, LSI Logic host adapters have been providing high performance SCSI solutions to leading server, disk array and computer systems worldwide. Each host adapter carries a powerful chip built in LSI's ISO 9001-certified fabrication facilities. Using only the highest quality components, LSI host adapters are assembled and tested in world-class facilities to assure superior product reliability and performance. Because of stringent quality management programs, our host adapters carry a three-year limited warranty.