AVAGO TECHNOLOGIES
A Broadcom Limited Company

Product Brief

SAS 9305

12Gb/s SAS Host Bus Adapter Family

Applications

- High port count SAS/SATA adapter solutions for direct attached high connectivity applications
- External storage requiring high connectivity SAS/SATA interface for host or drive side connect

Key Features

- Support for 16 external, 16 internal, or 24 internal 12Gb/S SAS and SATA ports
- Eight lanes, PCI Express 3.0 Host Interface
- Supports SSDs and HDDs and tapedrives
- High performance with 12Gb/s datatransfer rates and multiple SAS cores
  - Up to 1.5 million IOPs @ 4KB block size
  - Up to 6.5 GB/s sequential read throughput

Overview

The SAS 9305 16-port and 24-port, 12Gb/s SAS HBA family provides increased connectivity and maximum performance for high-end servers and appliances with internal storage or when connecting to large-scale storage enclosures.

The SAS 9305 HBA family is based on either the SAS 3216 or 3224 IO controller that integrates the latest enhancements in SAS and PCI Express® technology. The adapters can deliver more than 1 million IOPs. The HBAs support up to 24 SAS ports operating at 12Gb/s data transfer rates. The HBA family supports 8 PCI Express lanes that comply with the latest PCI Express 3.0 specification. The adapters are backwards compatible with the previous SAS and PCIe generations through automatic negotiation and provide SAS data transfer rates of 12, 6, and 3 Gb/s per lane and SATA data transfer rates of 6 and 3Gb/s per lane. Avago provides a broad suite of industry standard operating system drivers.

Avago Storage Solutions

Avago Limited products serve four primary target markets: wireless communications, wired infrastructure, enterprise storage, and industrial and other. Avago has the industry's broadest portfolio of storage solutions, backed by decades of experience and trusted by the world's leading server and storage suppliers. Avago provides the building blocks for storage solutions that help customers understand, prioritize, store and protect critical data.

The Avago 12Gb/s SAS portfolio includes MegaRAID controller cards, HBAs, advanced software options, Syncro shared DAS solutions, and SAS storage ICs, including RAID-on-Chip (ROCs), I/O controllers and expanders.

Fusion-MPT™ Architecture

Avago SAS HBAs are based on Fusion-MPT architected SAS controllers, which implement the Fusion-MPT (Message Passing Technology) architecture. Each controller features embedded PowerPC™ processors that help deliver maximum host CPU offload. The built-in intelligence enables Avago to publish a single binary OS driver to operate any Fusion-MPT controller or adapter. The architecture helps enable high performance, reduced software development, and faster time to market.

SAS9305 HBAs

	SAS 9305-24i	SAS 9305-16i	SAS 9305-16e
IO Controller	SAS 3224/ Fusion MPT 2.5	SAS 3224/ Fusion MPT 2.5	SAS 3216/ Fusion MPT 2.5
Port Count	24-port, internal	16-port, internal	16-port, external
Connectors	Mini-SAS HD SFF8643 Six (x4)	Mini-SAS HD SFF8643 Four (x4)	Mini-SAS HD SFF8644 Four (x4)
Storage Connectivity Data Transfer Rates	12Gb/s SAS 3.0 Compliant	12Gb/s SAS 3.0 Compliant	12Gb/s SAS 3.0 Compliant
SAS Bandwidth	1200 MB/s per port (each direction)	1200 MB/s per port (each direction)	1200 MB/s per port (each direction)
Port Configurations	24 ea, x1 ports (individual drives) 6 ea, x4 wide ports 3 ea, x8 wide ports	16 ea, x1 ports (individual drives) 4 ea, x4 wide ports 2 ea, x8 wide ports	16 ea, x1 ports (individual drives) 4 ea, x4 wide ports 2 ea, x8 wide ports
Host Bus	x8 lane, PCIe 3.0	x8 lane, PCIe 3.0	x8 lane, PCIe 3.0
PCI Data Burst Transfer Rates	Half Duplex x8, PCIe 3.0, 8000 MB/s	Half Duplex x8, PCIe 3.0, 8000 MB/s	Half Duplex x8, PCIe 3.0, 8000 MB/s
Form Factor	Low Profile*	Low Profile	Low Profile
Physical Dimensions	6.127" x 2.712" (155.65 mm x 68.90 mm)	6.127" x 2.712" (155.65 mm x 68.90 mm)	6.600" x 2.712" (167.65mm x 68.90mm)
Brackets	Low Profile & Full Height	Low Profile & Full Height	Low Profile & Full Height
Cable Support	Passive Copper	Passive Copper	Passive Copper, Active Copper, Active Optical
LED Management	Reference SFF-8485 (SGPIO) compliant	Reference SFF-8485 (SGPIO) compliant	SES
Operating Voltage	+12V +/-8%; 3.3V +/-9%	+12V +/-8%; 3.3V +/-9%	+12V +/-8%; 3.3V +/-9%
Power**	Typical: 16.2W	Typical: 16.2W	Typical: 13.0
Device Support	1024 Non-RAID devices	1024 Non-RAID devices	1024 Non-RAID devices
Environmental	Operating: 0°C to 55°C Storage: -45°C to 105°C 5 to 90% non-condensing Airflow: 200 LFM	Operating: 0°C to 55°C Storage: -45°C to 105°C 5 to 90% non-condensing Airflow: 200 LFM	Operating: 0°C to 55°C Storage: -45°C to 105°C 5 to 90% non-condensing Airflow: 200 LFM
MTBF	>3,500,000 hours at 40°C	>3,500,000 hours at 40°C	>3,500,000 hours at 40°C
Regulatory Certifications	USA (FCC 47 CFR part 15 Subpart B, class B); Canada (ICES -003, Class B); Taiwan (CNS 13438) ; Japan (VCCI V-3); Australia/New Zealand (AS/NZS CISPR 22);Korea (RRA no 2013-24 & 25); Europe (EN55022/EN55024); Safety: EN/IEC/UL 60950; RoHS; WEEE		
OS Support	Microsoft Windows, Linux (Oracle, SuSE , Red Hat), Solaris, VMware, FreeBSD, CentOS, Canonical, Citrix, FreeBSD, Fedora, Debian See http://www.avagotech.com/support/download-search for details on versions. Contact Oracle support for Oracle driver or software support..		
Warranty	3 years; with advanced replacement option Free technical support at http://www.avagotech.com/support		

**Top edge connector cable exit extends into full height card area.*
***Typical: Nominal Silicon and Voltage, All Links Running Maximum IOs, 25C Ambient*

Ordering Information

	9305-24i Single Kit Pack	9305-16i Single Kit Pack	9305-16e Single Kit Pack
	MPN: 05-25699-00	MPN: 05-25703-00	MPN: 05-25704-00

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Visit the Broadcom Server Storage website at: avagotech.com/server-storage

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