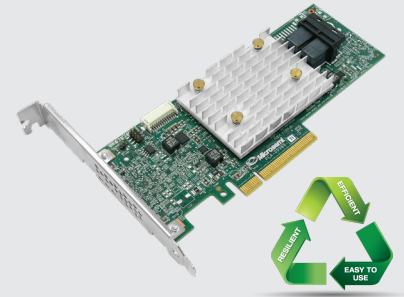# Adaptec® HBA 1100 Series: 1100-24i/16i/16e/8i8e/8i/8e/4i

12 Gbps PCIe Gen3 SAS/SATA Host Bus Adapter

Smart Storage and Connectivity

Today's data centers and enterprises need storage solutions that can keep pace with their rapid data expansion. The HBA 1100 is a product in the Smart Storage solutions family, forged through the convergence of SAS/SATA protocol controller expertise, more than 30 years of board innovation, and the new Smart Storage stack. The HBA 1100 Series, available in five different configurations with up to 24 internal SAS/SATA ports, offers a large number of density options in a low-profile, MD2 form factor. It delivers the smart connectivity that businesses are looking for, with high resiliency, low power and the performance required to unlock the capabilities of Flash media.

Resiliency and Efficiency

The HBA 1100 delivers enterprise resiliency with its broadly deployed Smart Storage stack. Based on the PM8222 8x12G SmartIOC 2100 SAS/SATA protocol controller, the HBA 1100 Series provides a robust and stable solution that can handle the toughest system workloads and configurations. It offers over 40 percent power savings compared to previous generations, and significant power advantages versus competing solutions. It is fully tools-compatible with existing and future HBA, RAID and expander solutions.

Optimized for New Devices and New Use Cases

The HBA 1100 supports SMR HDDs and their specific command sets (ZAC/ZBC for SAS/SATA SMR drives), enabling cost-efficient solutions for warm and cold storage applications. It also supports the latest SAS and SATA SSDs. The HBA 1100 is also optimized for software-defined storage solutions, such as Microsoft® Storage Spaces Direct, VMWare vSAN and OpenStack Swift/Ceph.

Maximum Performance

The HBA 1100 Series provides the highest levels of storage performance and scalability for next-generation data centers. Using the new SmartPQI host OS device drivers that are optimized for low-latency solid-state drives, HBA 1100 adapters can aggregate the performance of devices to the limits of the PCIe Gen3 host bus at 6.6 Gbps, and achieve up to 1.7M

IOPS and 60 percent higher IOPS performance with SATA devices without additional overhead or latency.[1] The HBA1100-24i, with 24 internal ports, delivers the lowest latency and highest performance when connected to SSDs, with no need for expanders in most rack server applications.

Ease of Use

The HBA 1100, with its broad operating system support and ecosystem compatibility, is easy to implement and scale, connecting up to 24 storage devices. The unified maxView management tools and drivers across the HBA, RAID and expander solutions enable easy manageability across the entire product line.

[1]16- and 24-port adapters can achieve 1.7M random read IOPS for 4 KB I/Os. Adapters with 8 ports and fewer are capable of 1.5M IOPS.

Benefits

- A 4- to 24-port HBA family, ideal for server solutions supporting SAS/SATA HDDs, tape devices and SSDs that require maximum connectivity, bandwidth and I/O performance
- Performance of up to 1.7M IOPS, low latency and low CPU utilization fully saturating the x8 PCIe Gen3 host bus
- Inbox drivers and broad operating system support and device and platform capability provides a single solution for servers, and all device connectivity needs

MICROCHIP

Highlights

- Up to 24 native SAS/SATA ports; low-profile/MD2 form factor
- 12 Gbps SAS data rates using mini-SAS HD connectors
- Quality and reliability through the unified, hardened Smart Storage stack, which is deployed in over 30M servers
- Proven compatibility and seamless integration with existing Adaptec® solutions that leverage the unified maxView management tool suite for remote and local setup and maintenance
- Uses the latest 28 nm SmartIOC 2100 SAS/SATA protocol controller to drive efficiency and performance while also having the industry's lowest-power consumption

Specifications

Parameter	Description	

Key Software Features	• Support for up to 256 SAS/SATA target devices (238 SSD/HDDs maximum support and remainder are reserved for expanders and enclosure management)
	• Multi-LUN support
	• SAS expander support
	• TLR
	• SATA NCQ
	• Hot plug drive support
		• S.M.A.R.T.
		• MPIO support
		• Multi-initiator (host)/clustering for SAS
		• Enclosure management
		  • SES-2, SES-3
		  • SFF-8485, SGPIO
		  • SFF-8489, IBPI
		• BMC support

Management Utilities	**maxView Storage Manager** • Web-based GUI management utility • OS support: Windows®, Linux®, VMware • Remote configuration, monitoring, and notification • Remote firmware updates • SMI-S support • SMTP **ARCCONF** • Command-line interface	**BIOS Configuration Utility (CTRL+A)** • Legacy configuration utility • Flashable BIOS support **ROM-based uEFI BIOS Configuration Utilities** • HII-based pre-boot GUI configuration utility • Arcconf CLI for uEFI shell • Flashable BIOS support • HII GUI support
Operating Systems	Microsoft Windows Server, Windows 10, Windows 8.1, Windows 7, Red Hat Enterprise Linux, CentOS, SuSE Linux Enterprise Server, Ubuntu Linux, Debian Linux, Oracle Linux, Citrix XenServer, Solaris, FreeBSD, VMware ESXi, and open-source Linux drivers. The latest drivers and OS X support are at storage.microsemi.com/en-us/support/start	
Physical Dimensions	2.535" H × 6.6" L (64 mm × 167 mm) for all SKUs except the HBA 1100-4i, which is 2.7" H × 5.2" L (68.58 mm × 132.08 mm)	
Operating Temperature	0°C to 55°C with 200 LFM airflow. Note: This adapter contains a powerful I/O processor that requires adequate airflow to operate reliably. Please install this card only into a server or PC chassis with at least 200 LFM airflow. Temperature measured 1 inch from adapter.	
Regulatory Certification	CE, FCC, UL, C-tick, VCCI, KCC, and CNS	
Environmental Compliance	RoHS	
Warranty	3 years	
Accessories	Serial Attached SCSI (SAS) cables (www.microsemi.com/product-directory/storage-boards/3686-cables-accessories)	

Ordering Information

HBA 1100 Series	Part Number	Host Interface	Form Factor	Ports	Connectors	MTBF at 40°C
HBA 1100-24i	2293800-R			24 internal	6 (×4) SFF-8643	2.73M hours
HBA 1100-16i	2293500-R			16 internal	4 (×4) SFF-8643	2.73M hours
HBA 1100-16e	2293600-R			16 external	4 (×4) SFF-8644	2.73M hours
HBA 1100-8i8e	2293700-R	8-Lane PCIe Gen 3	Low-profile, MD2	8 internal 8 externa	2 (×4) SFF-8643 2 (×4) SFF-8644	2.73M hours
HBA 1100-8i	2293200-R			8 internal	2 (×4) SFF-8643	1.36M hours
HBA 1100-8e	2293300-R			8 external	2 (×4) SFF-8644	1.38M hours
HBA 1100-4i	2293400-R			4 internal	1 (×4) SFF-8643	>1.4M hours

For More Information

https://www.microsemi.com/product-directory/host-bus-adapters/4821-thba-1100-host-bus-adapters