

# Microsemi Adaptec® HBA 1000 Series: 1000-16i/16e/8i8e/8i/8e

## 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 1000 is the first product in the new Smart Storage Solutions family that is being forged through the convergence of Microsemi SAS/SATA protocol controller expertise, more than 30 years of Microsemi board innovation, and acquired Smart IP technology. The HBA 1000 Series delivers the smart connectivity that businesses are looking for with an optimal mix of resiliency, efficiency, and ease of use. It's an ideal solution for server-based storage systems that require maximum bandwidth and I/O connectivity, low power consumption, and high reliability.

### Resiliency and Efficiency

The new unified Smart Storage Stack delivers resiliency by combining the best of the eighth-generation Microsemi Adaptec RAID code (ARC) software and drivers with the acquired Smart IP of the most broadly deployed server storage stack. Combined with the SScI (16x12G/8x12G) SmartIO SAS/SATA protocol controller from Microsemi, the HBA 1000 Series provides a robust and stable solution that can handle the toughest system workloads and configurations. It is fully compatible with existing and future Microsemi HBA, RAID, and expander solutions.

Available in five different 12 Gbps configurations with up to 16 internal or 16 external SAS/SATA ports, the HBA 1000 Series offers the highest port count in a low-profile/MD2 form factor. Additionally, it consumes 60% less power than competing HBAs.

### Maximum Performance

The HBA 1000 Series provides the highest levels of storage performance and scalability for next-generation data centers by connecting numerous state-of-the-art 12 Gbps storage devices that can aggregate their performance to the limits of the PCIe Gen3 host bus at 6600 Mbps and achieve up to 1.3M IOPs with minimal overhead or additional latency.

### Ease of Use

The HBA 1000, with its broad operating system support and ecosystem compatibility, is easy to implement and easy to scale when directly connecting up to 16 storage devices or scaling out with full compatibility using expanders. The unified management tools and drivers across the Microsemi HBA, RAID, and expander solutions enable easy manageability across the entire product line.



### Benefits

- Ideal for high-performing I/O solutions supporting SAS/SATA HDDs and SSDs requiring maximum connectivity.
- Provides I/O connectivity that offers the highest bandwidth, lowest latency, and highest I/O performance paired with broad operating system support, including 6 Gbps systems.
- Performance of up to 1.3M IOPS, low latency, and bandwidth fully saturating the PCIe Gen3 bus.

### Highlights

- 8 or 16 native SAS/SATA ports; low-profile/MD2 form factor
- 12 Gbps SAS data rates with mini-SAS HD connectors
- Lowest power consumption and total cost of ownership (TCO) of any HBA
- Unified, hardened Smart Storage Stack
- Proven compatibility with existing Microsemi Adaptec solutions, multiple operating systems, servers, enclosures, SSDs, HDDs, and LTO tape drives
- SmartIO SAS/SATA protocol controller that drives efficiency of higher performance, maximum port count, and 60% less power consumption on average than competing HBAs

# Microsemi Adaptec® HBA 1000 Series: 1000-16i/16e/8i8e/8i/8e

## 12 Gbps PCIe Gen3 SAS/SATA Host Bus Adapter

<b>Key software features</b>	<ul style="list-style-type: none"> <li>Support for up to 256 SAS/SATA target devices (238 SSD/HDDs maximum support and remainder are reserved for expanders and enclosure management)</li> <li>Multi-LUN support</li> <li>SAS expander support</li> <li>TLR</li> <li>SATA NCQ</li> <li>Hot plug drive</li> <li>S.M.A.R.T.</li> </ul>	<ul style="list-style-type: none"> <li>MPIO support</li> <li>Multi-initiator (host)/clustering for SAS</li> <li>Enclosure management               <ul style="list-style-type: none"> <li>SES-2, SES-3</li> <li>SFF-8485, SGPIO</li> <li>SFF-8489, IBPI</li> </ul> </li> <li>BMC support</li> </ul>
<b>Management utilities</b>	<b>maxView Storage Manager</b> <ul style="list-style-type: none"> <li>Web-based GUI management utility</li> <li>OS Support: Windows, Linux, VMware</li> <li>Remote configuration, monitoring, and notification</li> <li>Remote firmware updates</li> <li>SMI-S support</li> <li>SMTP</li> </ul> <b>ARCCONF</b> <ul style="list-style-type: none"> <li>Command Line Interface</li> </ul>	<b>BIOS Configuration Utility (CTRL+A)</b> <ul style="list-style-type: none"> <li>Legacy configuration utility</li> <li>Flashable BIOS support</li> </ul> <b>uEFI BIOS Configuration Utility</b> <ul style="list-style-type: none"> <li>Flashable BIOS support</li> <li>HII GUI support</li> </ul>
<b>Operating systems</b>	Microsoft Windows, Red Hat, SuSE, CentOS, Ubuntu, VMware ESXi. The latest drivers and OS support are at <a href="http://storage.microsemi.com/en-us/support/start">storage.microsemi.com/en-us/support/start</a>	
<b>Physical dimensions</b>	2.535" H x 6.6" L (64 mm x 167 mm)	
<b>Operating temperature</b>	0 °C to 55 °C with 200 LFM airflow. <b>Note:</b> This adapter contains a powerful I/O processor that requires adequate airflow to operate reliably. Please install this card only into server or PC chassis with at least 200 LFM airflow. Temperature measured 1 inch from adapter.	
<b>Regulatory certification</b>	CE, FCC, UL, C-tick, VCCI, KCC, CNS	
<b>Environmental compliance</b>	RoHS	
<b>Warranty</b>	3 years	
<b>Accessories</b>	Serial Attached SCSI (SAS) cables ( <a href="http://www.microsemi.com/products/storage/cables-accessories/cables-accessories">http://www.microsemi.com/products/storage/cables-accessories/cables-accessories</a> )	

HBA 1000 Series	HBA 1000-16i	HBA 1000-16e	HBA 1000-8i8e	HBA 1000-8i	HBA 1000-8e
<b>Order part number</b>	2288400-R	2288200-R	2288500-R	2288300-R	2288100-R
<b>Host bus interface</b>	8-Lane PCIe Gen3	8-Lane PCIe Gen3	8-Lane PCIe Gen3	8-Lane PCIe Gen3	8-Lane PCIe Gen3
<b>Form factor</b>	Low-profile/MD2	Low-profile/MD2	Low-profile/MD2	Low-profile/MD2	Low-profile/MD2
<b>Ports</b>	16 Internal	16 External	8 Internal/8 External	8 Internal	8 External
<b>Connectors</b>	4 (x4) SFF-8643	4 (x4) SFF-8644	2 (x4) SFF-8643 2 (x4) SFF-8644	2 (x4) SFF-8643	2 (x4) SFF-8644
<b>Operating current</b>	0.3 A at 3.3 V; 0.9 A at 12 V	0.1 A at 3.3 V; 0.9 A at 12 V	0.1 A at 3.3 V; 1 A at 12 V	0.3 A at 3.3 V; 0.7 A at 12 V	0.1 A at 3.3 V; 0.7 A at 12 V
<b>MTBF</b>	2 million hours	2 million hours	2 million hours	2 million hours	2 million hours
<b>Typical power</b>	11.8 W	11.1 W	12.3 W	9.4 W	8.7 W



**Microsemi Corporate Headquarters**  
 One Enterprise, Aliso Viejo, CA 92656 USA  
 Within the USA: +1 (800) 713-4113  
 Outside the USA: +1 (949) 380-6100  
 Sales: +1 (949) 380-6136  
 Fax: +1 (949) 215-4996  
 email: [sales.support@microsemi.com](mailto:sales.support@microsemi.com)  
[www.microsemi.com](http://www.microsemi.com)

©2016 Microsemi Corporation. All rights reserved. Microsemi and the Microsemi logo are registered trademarks of Microsemi Corporation. All other trademarks and service marks are the property of their respective owners.

Microsemi Corporation (Nasdaq: MSCC) offers a comprehensive portfolio of semiconductor and system solutions for aerospace & defense, communications, data center and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions, setting the world's standard for time; voice processing devices; RF solutions; discrete components; enterprise storage and communication solutions, security technologies and scalable anti-tamper products; Ethernet solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Microsemi is headquartered in Aliso Viejo, Calif., and has approximately 4,800 employees globally. Learn more at [www.microsemi.com](http://www.microsemi.com).

Microsemi makes no warranty, representation, or guarantee regarding the information contained herein or the suitability of its products and services for any particular purpose, nor does Microsemi assume any liability whatsoever arising out of the application or use of any product or circuit. The products sold hereunder and any other products sold by Microsemi have been subject to limited testing and should not be used in conjunction with mission-critical equipment or applications. Any performance specifications are believed to be reliable but are not verified, and Buyer must conduct and complete all performance and other testing of the products, alone and together with, or installed in, any end-products. Buyer shall not rely on any data and performance specifications or parameters provided by Microsemi. It is the Buyer's responsibility to independently determine suitability of any products and to test and verify the same. The information provided by Microsemi hereunder is provided "as is, where is" and with all faults, and the entire risk associated with such information is entirely with the Buyer. Microsemi does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other IP rights, whether with regard to such information itself or anything described by such information. Information provided in this document is proprietary to Microsemi, and Microsemi reserves the right to make any changes to the information in this document or to any products and services at any time without notice.