

Adaptec® HBA 1200 Series: 32i/16i/16e/8i/8e

Tri-Mode SAS/SATA/NVMe™ Host Bus Adapters

Host: x8/x16 PCIe® Gen 4

Media: 24G SAS, 6G SATA, PCIe Gen 4 NVMe

Maximum Performance and Security With Tri-Mode Functionality

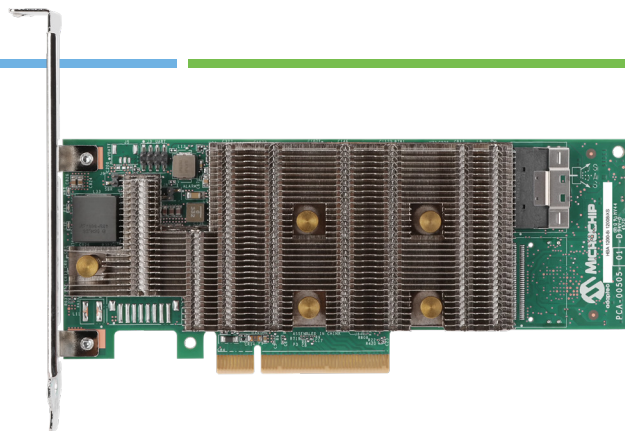
The Adaptec® HBA 1200 family is the industry's most versatile, fully featured and secure Tri-mode SAS/SATA/NVMe host bus adapter enabling high-performance connectivity solutions for server OEM, storage systems, data center and enterprise customers.

The HBA 1200 series of PCIe Gen 4 to Tri-mode host bus adapters come in a wide range of performance optimized configurations optimized for the lowest possible cost.

Built on Microchip's proven 5th generation storage controller, the SmartI/O 2200, the HBA 1200 product supports both x8 and x16 PCIe Gen 4 host interface adapters with 32, 16, and 8 media facing port variants for both internal and external Tri-mode connectivity. The HBA 1200 Ultra products are specifically designed for the most demanding NVMe and multi-port SAS SSD applications. The SmartI/O 2200 integrated PCIe Switch enables DirectPath technology - the industry's lowest latency and high bandwidth NVMe solution and the flexibility to support x1, x2, x4 and x8 wide NVMe SSDs.

This industry first 24G SAS adapter supports SAS-4 connectivity as well as Microchip's Dynamic Channel Multiplexing (DCM) technology that aggregates expander attached SAS or SATA hard drives onto 24G SAS infrastructure with near 100% link efficiency for unparalleled throughput. Native HBA modes for all media types are also supported, which offers the lowest latency for memory-based PCIe storage. Superior performance enables the HBA 1200 Ultra to reach up to 29.6 GB/s throughput and 3.5M+ IOPs 4K random reads.

Microchip's Trusted Platform support delivers a new level of compute and supply chain security based on a hardware root of trust that is aligned with the Open Compute Security Project.



Seamless Media Support with Tri-Mode Connectivity

The HBA 1200 supports both Intel® Virtual Pin Port (VPP) for intelligent backplane management and SFF's Universal Backplane Management (UBM) standards to simplify integration and enhance product flexibility for system integrators. UBM support enables auto-detection of the media type and interface bifurcation. SGPIO and SCSI Enclosure Services (SES) allow a common way to manage device status and activity for directly connected storage devices or for devices connected behind a SAS expander.

The Smart Storage platform supports industry leading storage management including standards-based Platform Level Data Model (PLDM)/Redfish® Device Enablement (RDE) to simplify integration and Microchip's ChipLink Diagnostic Tool with signal integrity analysis and context sensitive documentation to accelerate time to market.

The Adaptec HBA 1200 adapters support a wide range of software solutions including Microsoft® Storage Spaces Direct, VMWare vSAN and OpenStack Swift/Ceph.

Highlights

- Low profile, MD2 form factor on all boards with up to 16-ports.
Full-height, half-length form factor for 32-port variants
- Fully Tri-mode capable: 16 Gbps NVMe Gen 4, 24 Gbps SAS4, and 6 Gbps SATA
- 8-lane (x8) or 16-lane (x16 ultra) PCIe Gen 4 host interface
- Internal SlimSAS (SFF-8654) and external mini-SAS HD connectors (using SFF-9402 pinout to support U.2 and U.3)
- Secure boot, secure update and attestation
- Dynamic adapter power management
- ARCCONF/maxView support
- Support for 64 NVMe devices and up to 256 SAS/SATA devices
- Broad inbox OS coverage
- Comprehensive out of box driver support
- Multi initiator support for SAS only
- SGPIO, SES, UBM and VPP enclosure management support
- Support for x86 platform
- Self-Encrypting Drive (SED) management software

Key Software Features	• Adapter dynamic power management to save up to 30% power • Support for up to 256 SAS/SATA target devices (238 SSDs/HDDs maximum—remainder are reserved for expanders and enclosure management) • Support for NVMe target devices with Gen 3/4 interfaces (x1, x2, x4, and x8 wide interfaces) • SAS expander support • PCIe® switch support⁵	• SATA NCQ • Multi-initiator (host)/clustering for SAS • Hot-plug drive support • Automatic/manual rebuild of hot spares • SGPIO, SES, UBM and VPP enclosure management support • PBSI, MCTP and Platform Level Data Model (PLDM) and Redfish Device Enablement (RDE) for out-of-band (BMC) management • S.M.A.R.T. support • Staggered drive spin-up	• Secure boot, secure update and attestation support • USB image available on www.adaptec.com/en-us/support/start to boot the maxView GUI from any USB device for enhanced GUI-based setup and offline maintenance
Management Utilities	maxView Storage Manager • Web-based GUI management utility • Windows, Linux, Solaris, VMware support • Remote configuration, monitoring, notification and firmware updates • SMI-S support • SMTP	ARCCONF • Command-line interface • Local and remote support • arccconf for uEFI shell support • SMI-S support for VMware • ARCCONF CLI support for SAS/SATA legacy devices	uEFI BIOS Configuration Utility • HII-based configuration utility • Flashable BIOS support Event Monitor • Lightweight event monitoring and logging tool • Distributes adapter events and notifies user
Management Utilities (Out-of-Band)	PBSI, MCTP and PLDM/RDE		
Operating Systems	Microsoft Windows® Server, Windows 10, 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/inbox drivers (available from www.adaptec.com/en-us/support/start)		
Dimensions	2.713" H × 6.6" L (68.9 mm × 167.65 mm) for all boards up to 16 ports. 4.376" H × 6.6" L (111.15 mm × 167.65 mm) for all 32-port boards.		
Airflow (0°C to 55°C)	330 LFM airflow HBA Ultra 1200-16e	300 LFM airflow HBA Ultra 1200-16i	250 LFM airflow HBA Ultra 1200-32i HBA 1200-8i HBA 1200-16i HBA 1200-16e HBA 1200-8e
	Note: Temperature measured 1 inch from RAID adapter		
Regulatory Certification	CE, FCC, UL, C-tick, VCCI, KCC, CNS		
Environmental Compliance	RoHS		

Ordering Information

Product Name	Part Number	Form Factor	Host Interfac	Tri-Mode Ports
HBA Ultra 1200-32i	1200UP32IXS	FH/HL	16-Lane PCIe® Gen 4	32 internal
HBA Ultra 1200-16i	1200UP16IXS	LP/MD2		16 internal
HBA Ultra 1200-16e	1200U16EXS	LP/MD2		16 external
HBA 1200-16i	120016IXS	LP/MD2	8-Lane PCIe Gen 4	16 internal
HBA 1200-16e	120016EXS	LP/MD2		16 external
HBA 1200-8i	12008IXS	LP/MD2		8 internal
HBA 1200-8e	12008EXS	LP/MD2		8 external

All features may not be available with initial product release. Please contact Microchip for more information.