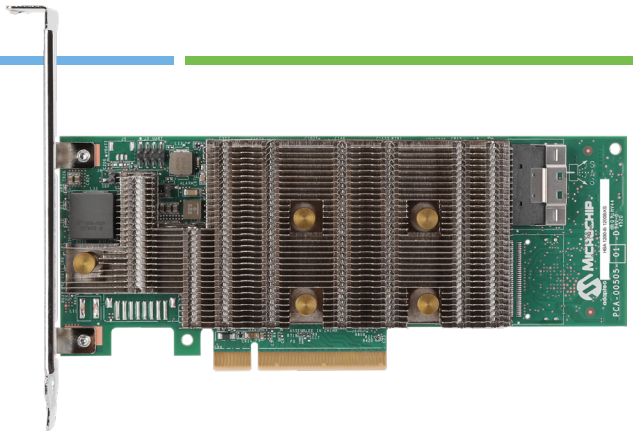
Adaptec® HBA 1200 Series: 32i/16i/16e/8i/8e

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 SmartIOC 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 SmartIOC 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 support[5]	• 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 • arcconf 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 Note: Temperature measured 1 inch from RAID adapter	**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
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.

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