



PCI Express - Serial ATA II RAID Adapter

eXpeRAID® ACS-61000/ACS-61010

PRODUCT HIGHLIGHTS

- PCI Express™ interface
- Support 4,8,12,16 3Gb/s SATA2 drives
- Up to 1GB DDR cache memory with BBM protection
- Configurable RAID levels: 0, 0+1, 5, 6, and JBOD
- Instant availability by on-the-fly RAID initialization
- Support over-2TB volumes
- Optimized for multiple-stream video processing
- Online RAID expansion and migration
- Online disk scrubbing and SMART monitoring
- Snapshot for fast backup and restore
- Certified for Windows Vista
- Designed for Windows logo certified
- Support Mac OS and Linux
- Support EFI and legacy BIOS
- Java-based GUI for remote management
- Reliable multi-lane MiniSAS connections

Overview

The eXpeRAID® PCI Express™ to SATA2 RAID adapters offer superior performance and comprehensive RAID functions for Windows, Linux, and Mac platforms with user-friendly Java-based GUI, RAIDGuard™ X. Built upon the latest Intel XScale® Technology-based I/O processor, the eXpeRAID adapters support RAID 6 for enterprise-class data protection. Supporting up to 16 SATA2 disk drives, the eXpeRAID adapters are well suited for various applications, such as video editing, digital surveillance, file servers, and shared storage.

Streamlined Performance

The eXpeRAID adapters deliver excellent performance with intelligent I/O processing and elaborated RAID algorithms. The controller can guarantee timely I/O response by bypassing slow disk drives and delivering requested data by fast online data rebuild. It streamlines the data transfer and sustains a stable throughput, so the controllers can smoothly handle heavy-loading and time-critical applications. It also provides configurable optimization policies to support different workload.

Proactive Data Protection

Featuring reliable RAID technologies, the eXpeRAID adapters protect data against not only disk drive failure but also bad sectors by online recovery and reallocation. In addition to online disk scrubbing for fixing the bad sectors, the controller also supports online data and parity refresh to proactively prevent data loss caused by media aging.

Snapshot Technology

The eXpeRAID adapters support snapshot, by which users can instantaneously create data images at different points of time. After a snapshot of LUN is created, the original LUN can still serve I/O requests normally, while the snapshot can be exported as an independent LUN for other hosts and applications. The snapshot helps to implement zero-down time backup scenario, and speed up backup operations. Users can also rely on snapshot for fast data restore or data mining.

On-Demand Flexibility

To support dynamics in ever-changing IT environments, the eXpeRAID adapters provide not only flexible RAID configurations but also extensive utilities to online change the RAID configurations. Users can easily expand the RAID capacity and repartition the RAID. It is also allowed to conduct RAID migration virtually from any to any.

Efficient RAID Initialization

The innovative on-the-fly RAID initialization makes the RAID storage instantly available. The controller initializes the data areas hit by the host I/O access and maintains a table to track these areas. The subsequent I/O access and the background initialization task needs not to initialize these areas. This efficiently speeds up the initialization process and improves the performance during the initialization.

Effortless Management

The eXpeRAID adapters satisfy users of different backgrounds by offering a variety of management interfaces, including EFI CLI, BIOS UI, LCD panel, and Java-based GUI -- RAIDGuard™ X. Users can quickly set up RAID configurations within minutes, and remotely manage multiple RAID adapters from single console by the GUI. Together with friendly event browsing and email notification, RAIDGuard™ X can support a newbie to effortlessly enjoy the high-performance and reliable RAID storage as well as reduce the support cost of system integrators.

Future-proof Interoperability

In addition to commonly-used platforms, the eXpeRAID adapters also offer future-proof interoperability. It supports the next-generation BIOS, EFI, which is also a necessity on IA-based Mac machines. It also supports Windows Storport driver, which enhances the performance and reliability on Windows platforms. Meanwhile, the GUI, RAIDGuard™ X, based on Java, can run on virtually all platforms.

Technical Specifications

Host Interface

- PCI Express 2.5GHz x8, transfer rate up to 2GB/s

Disk Interface

- Support 4/8/12/16 Serial ATAII (SATA2) channels
- Multi-lane (x4) SFF8087 (MiniSAS 4i) connectors
- Support ATA S.M.A.R.T functions
- Support SATA NCQ and stagger spin-up

RAID Controller Specifications

- Intel XScale® Technology-based IOP333 64-bit 500MHz RISC processor
- Hardware XOR/Multi-Parity engine
- High-speed and ECC-protected DDR memory
- Support battery-backup protection
- 32KB NVRAM with real-time clock (RTC)
- Beeper build-in for audible event alert (optional)
- Support multiple adapters configuration

Cache Memory

- ACS-61000: on-board DDR2-400 256MB memory
- ACS-61010: DDR-333 SODIMM socket, up to 1GB memory

Firmware Specifications

- Multiple RAID levels: 0, 0+1, 5, 6, and JBOD
- Up to 4 independent disk arrays
- RAID capacity partitioning: up to 16 slices
- Support up to 64 LUNs
- Variable stripe sizes, up to 128KB
- Selective initialization method with on-the-fly background initialization
- Support over-2TB volumes
- Online RAID group expansion
- Online RAID level migration
- Support write-back and write-through caching
- Selective and adaptive read/write optimization policies
- Disk lag proof technology to guarantee timely response
- Performance equalizer for optimal sustaining throughput
- Automatic drive insertion/removal detection and fast disk rebuilding
- Online bad block data recovery and reallocation
- Online disk scrubbing with data refresh and parity regeneration

Physical and Environment Specifications

Dimension

- ACS-61000 : low-profile adapters (187.7 x 68.9 mm)
- ACS-61010 : full-height adapters (203.2 x 111.2 mm)

Power Requirements

- + 3.3Vdc: 5W max.
- + 12.0Vdc : 6W max.

Humidity

- Operation mode : 5% to 85%
- Non-operation mode : 5% to 95%

Ordering Information

PCI Express Adapter

- ACS-61000-04** : disk channels x4 (MiniSAS 4i x1)
- ACS-61000-08** : disk channels x8 (MiniSAS 4i x2)
- ACS-61010-12** : disk channels x12 (MiniSAS 4i x3)
- ACS-61010-16** : disk channels x16 (MiniSAS 4i x4)

LCD/Button module

LCD/Button module with bracket



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- Disk health monitoring by S.M.A.R.T.
- NVRAM-based transaction log and auto parity resynchronization
- Array roaming and drive traveling
- Redundant on-disk RAID metadata
- Array recovery to restore RAID configurations
- Dual firmware images for firmware recovery
- Support boot from RAID
- Enclosure components monitoring and control

Snapshot

- Snapshot for fast data backup and restore
- Mirror-split shot with background full-volume copy
- Support manual and scheduled snapshot creation
- Fast resynchronization by delta data tracking
- Support writable snapshot LUN
- Support up to 8 concurrent snapshot per source volume

Management

- Support both in-band and out-band management
- Support drive status LED indicators
- Support LCD panel for RAID management
- Support I2C through multi-lane cables
- Support RAID management by EFI and BIOS
- Support firmware upgrade via GUI
- Open API library for management integration

RAIDGuard™ X GUI

- Java-based GUI, cross-platform executable
- Support remote management
- Event logging to text file with event viewer
- Event notification by email (SMTP)
- Centralized multiple RAID system management

Supported OS

- Windows: Win XP Pro, 2000, 2003, Vista 32/64
 - Linux: Red Hat & SUSE
 - MAC: OS X (Mac G5 & Mac Pro)
- * For the latest supported OS, please visit accusys.com.tw

Temperature

- Operation mode : 0°C to 50°C
- Non-operation mode : -20°C to 70°C

Certification Compliance

- FCC, CE, C-Tick, BSMI
- Certified for Windows Vista
- Designed for Windows logo certified

Battery Backup Module

- ACS-1162 Kit:** Lithium cells battery module. Cached data will be kept for up to 72 hours (50mA/100hrs).
- Dimension: 78.8(L) x 78.1(W) x 21.5(H) mm

Warranty

3-year limited warranty



- Accusys U.S.A., Inc.
- Accusys Korea, Ltd.
- Accusys China.
- Accusys EU B.V

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