



ExpressSAS 3Gb RAID Flash Bundle v120521

1. General Release Information

These product release notes define the new features, changes, known issues and release details that apply to the ExpressSAS 3Gb RAID adapter flash bundle package, version 120521, which was released on May 24, 2012. This information pertains to the flash bundles and BIOS utility associated with the ExpressSAS RAID product.

2. Changes

- **Version 120521/BIOS 4.06/EFI 3.86 (Released 05/21/12)**
 - **New Features, Enhancements and Changes**
 - [BIOS Config] Fixed an issue where the Configuration Utility would not save NVRAM settings.
 - [BIOS Config] Fixed an issue where the Configuration Utility would incorrectly warn that NVRAM settings were not saved.
 - [BIOS/EFI Config] Fixed cryptic "HBA Internal Error" message display when trying to rebuild an invalid RAID group.
 - [EFI] Improvements have been made to keep track of system time more precisely.
 - [EFI] Fixed several issues with using CD-ROM type devices.

- **Version 110926 (Released 09/29/11)**
 - The following apply to changes made from v4.05 to v4.06.
 - **New Features, Enhancements and Changes**
 - Incorporated firmware version 3.85
 - A rare issue where VDA RAID member discovery could time out has been fixed.
 - Resolved a memory corruption issue when the NVRAM is saved and the configuration utility is exited and re-entered.

- **Version 110509 (Released 05/09/11)**
 - The following apply to changes made from v4.01 to v4.05.
 - **New Features, Enhancements and Changes**
 - Incorporated firmware version 3.80

- **Version 101227 (Released 12/30/10)**
 - The following apply to changes made from v4.00 to v4.01.
 - **New Features, Enhancements and Changes**
 - Incorporated firmware version 3.76

- **Version 101119 (Released 11/30/10)**
 - The following apply to changes made from v3.70 to v4.00.
 - **New Features, Enhancements and Changes**
 - Incorporated firmware version 3.75

- Enhanced Intelligent Platform Management Interface (IPMI) and Serial Over LAN (SOL) support within BIOS and the configuration utility.
- **Version 101026 (Released 10/29/10)**
 - The following apply to changes made from v3.66 to v3.70
 - **New Features, Enhancements and Changes**
 - Incorporate firmware version 3.70 for support of current driver enhancements.
 - Changes implemented to improve performance
- **Version 100928 (Released 10/04/10)**
 - The following apply to changes made from v3.65 to v3.66
 - **New Features, Enhancements and Changes**
 - Incorporate firmware version 3.66 for support of current driver enhancements.
- **Version 100709 (Released 07/15/10)**
 - The following apply to changes made from v3.61 to v3.65
 - **New Features, Enhancements and Changes**
 - Incorporate firmware version 3.65 for support of current driver enhancements.
 - Introduced several optimizations to enhance the footprint and memory allocation.
 - The BIOS initialization screen has been modified for consistency and ease of viewing.
 - Enhanced information pertaining to the block size and the calculation of the capacity of drives that have block sizes that are not a power of 2.
- **Version 100104 (Released 01/12/10)**
 - The following apply to changes made from v3.55 to v3.61
 - **New Features, Enhancements and Changes**
 - Incorporate firmware version 3.61 for support of current driver enhancements.
- **Version 091029 (Released 10/29/09)**
 - The following apply to changes made from v3.50 to v3.55
 - **New Features, Enhancements and Changes**
 - Incorporate firmware version 3.55 for support of 3.60 driver release enhancements.
 - Enhanced Media Scan to coincide with RAID rebuild priority settings.
 - Improved cache efficiency for multiple array groups.
- **Version 090911 (Released 9/18/09)**
 - The following apply to changes made from v3.30 to v3.50
 - **New Features, Enhancements and Changes**
 - DriveAssure™ implemented. ATTO exclusive allows systems to run longer, faster and smoother without interrupted data flow.
 - Uses active monitoring of drive response times, retries of reads and writes and alternative methods of data generation, to return data without failing drives.
 - EFI driver included for x86 AND X64 platforms
 - Memory and code optimizations enhanced to reduce the runtime driver footprint.
- **Version 090709 (Released 7/31/09)**
 - The following apply to changes made from v3.20 to v3.30
 - **New Features, Enhancements and Changes**
 - BlockDevScan timeout increase during initial device discovery.
 - Interrupt polling usage in lieu of hardware interrupts.
 - 1 TB and larger drive activated support.
 - NCQ enabled / disabled control added
- **Version 090126 (Released 1/30/09)**
 - The following apply to changes made from v2.00 to v3.20
 - **New Features, Enhancements and Changes**

- Resolved an issue regarding the HBA not coming up at full speed under PCI Express 2.0. The problem occurred when using a specific Intel chipset, the MCH 5400
- **Version 080627 (Released 6/30/2008)**
 - The following apply to changes made from v2.00 to v2.20
 - **New Features, Enhancements and Changes**
 - Improved Media Error Handling
 - To account for variances in physical media, the ExpressSAS RAID products have implemented enhanced error handling to minimize potential workflow interruptions caused by imperfect media. In addition, during RAID group initialization, users will have a choice between an Advanced Initialization method which will thoroughly scan and clean the selected media minimizing the RAID group's susceptibility to errors. This is usually done the first time a RAID group is created and requires that no I/O be allowed during the process. Another initialization method added, Express Initialization, allows users to perform I/O during initialization and is generally used when the media has previously been through a full initialization cycle.
 - Enhanced SES support:
 - Monitoring and notification of enclosure properties (i.e. power, fan speed, etc.)
 - Users are able to actively monitor the characteristics of any SES supported enclosure device. This includes viewing the status of the enclosure power supply, temperature and fan speed. In addition, through the Configuration Tool, the user can configure the ExpressSAS RAID to provide email notifications when an event such as a failure occurs.
 - Support for displaying enclosure serial number
 - The ExpressSAS RAID adapter/Configuration Tool can display an enclosure serial number attached to the adapter if supported by the enclosure.
 - Ability to illuminate fault LEDs in an enclosure with an embedded expander
 - To simplify usability, users can easily identify a faulted drive and replace accordingly.
 - Identify a drive in an enclosure with an embedded expander from the Configuration Tool
 - To simplify usability, from the Configuration Tool, users are able to identify a selected drive by flashing the drive LED.
 - Identify all drives in a single RAID group within an enclosure with an embedded expander
 - To simplify usability, from the Configuration Tool, users are able to identify all members of a selected RAID group by flashing the LEDs of the respective drives.
 - Identify all drives within an enclosure with an embedded expander
 - To simplify usability, from the Configuration Tool, users are able to identify all drives within a selected enclosure by flashing the LEDs of the respective drives.
 - Enhanced GUI functionality:
 - The following implementations have been made to the ATTO Configuration Tool to improve overall usability and provide the user with more relevant information related to their RAID group and media.
 - Enhanced RAID group properties provide more functionality and additional performance optimization parameters for the advanced user.
 - Ability to display advanced drive properties provides the user with additional information related to the attached drives.
 - Enhanced event notifications and logging provides users with additional troubleshooting information to diagnose problems.
 - Improved user help text provides additional information on product functionality.
 - Support for drive filtering (OEM Only)
 - Through a unique OEM parameter setting, the ExpressSAS RAID adapter can limit the RAID group creation to use only specified drive types. This minimizes the

support efforts for OEMs and allows them to use only those drives “qualified” for their solution.

- Support for 4KB sector size RAID groups
 - This enables users to create RAID groups larger than 2TB addressable in 32-bit Windows XP.
 - Improved Performance
 - Additional performance improvements have been incorporated to further enhance SAS and SATA performance for reads as well as writes in various applications.
 - The ExpressSAS RAID product has enhanced the rebuild prioritization feature thus increasing general MB/sec performance during the rebuild process.
 - Added support for ExpressSAS R30F 16 port RAID adapter
 - Enhanced stability while performing heavy I/O during a RAID group rebuild.
 - Improved handling of I/O during RAID group conversion
 - Added ability to support LUNs > 0 on pass-through devices such as SAS tape libraries.
 - Addressed an issue when performing a RAID 0 to RAID 10 migration.
 - Improved the handling of data overrun conditions.
 - BIOS driver signatures were updated so as not to cause conflicts when more than one ATTO adapter family is used in the same system.
 - In the event a system BIOS assigns the improper I/O address, the ExpressSAS RAID will reassign I/O base register to avoid potential system hangs.
 - Enable/Disable BIOS setting is now applied to all installed adapters, not just the currently enabled adapter.
 - Enhanced device wait time processing.
- **Version 080123 (Released 1/24/2008)**
 - The following apply to changes made from v1.20 to v2.00
 - **New Features, Enhancements and Changes**
 - Performance improvements: Up to 5x improvement in IOPS performance.
 - Pass-through mode: Provides support for operation of the RAID adapter with non-block devices such as tape drives and libraries.
 - Auto rebuild: Support added to allow users to set the adapter to automatically begin a rebuild of a RAID group when a failed drive is replaced with a new, clean drive.
 - Staggered drive spin-up: Support added to set the interval to spin drives up individually ultimately lowering the power consumption on the enclosure power supply.
 - SES support: Added support to monitor the health of the storage enclosure and its respective devices.
 - SpeedRead functionality: Added adaptive speedread control to provide optimal performance based on the read I/O of your application (i.e. sequential vs. random).
 - Enhanced device enumeration to improve user experience by providing feedback while waiting for drives to be discovered.
 - Improved messaging during the configuration of hot spares.
 - Reassign I/O base registers when a system BIOS improperly assigns I/O addresses to avoid system hangs on some platforms.
 - Improved detection of mapped partitions to avoid failed deleting RAID group attempt when no partitions are mapped.
 - Fixed system hang with drive pull during DVRAID group rebuild.
 - Improved interoperability with Promise RAID array.
 - Improved error handling with drive pull with speed read enabled
 - Improved auto-mapping implementation.
 - Addressed a firmware hang when a cable is pulled under certain conditions.
 - Improved conversion processing.
 - Modified driver initialization to account for drives not being available during initialization.
 - Addressed an issue with multiple RAID groups requiring rebuilds simultaneously.
 - Addressed firmware crash when playing back HD with Avid Nitris.
 - Expanded drive configurations for DVRAID
 - Modified faulted rebuild event log message.

3. Known Issues/Advisements

- If the message “An error occurred in the driver: 0xb6” is seen while flashing an adapter using the ATTO Configuration Tool, the computer must be rebooted to continue flashing.
- There is an interoperability issue with Western Digital 2TB SATA drives.

4. Affected Products

Product Name	SKU
ExpressSAS R348 RAID Adapter	ESAS-R348-000
ExpressSAS R380 RAID Adapter	ESAS-R380-000
ExpressSAS R30F RAID Adapter	ESAS-R30F-000

5. Contacting ATTO Support

ATTO Technology, Inc. is renowned for its technical support services. ATTO’s goal is to provide you the quickest response possible for your technical support needs, and is available Monday-Friday, 8:00 AM to 6:00 PM EST (except holidays).

ATTO Technical Support can be contacted via phone or email:

- Phone: 716.691.1999 ext. 242
- E-Mail: techsupport@attotech.com