ATTO Technology, Inc.

Product Release Notes

ExpressSAS RAID Release v3.20 - Mac® OS X

1. General Release Information

These product release notes define the new features, changes, known issues and release details that apply to the ExpressSAS RAID adapter product, version 3.20, which was released on 3/27/2009. This information pertains to the Mac OS X platform for PowerPC and Intel® based systems.

2. Changes

- ***Version 3.20 (Released 03/30/2009)***
  - The following apply to changes made from v3.11 to v3.20
  - **Note:** It is recommended that firmware dated 3/27/09 be utilized with this driver release.
  - **New Features**
    - SATA NCQ is disabled in NVRAM by default
    - Added support for the sector scanning
    - Added a system NVRAM setting, '-i', to control the maximum I/O size sent to the driver. The default size is "infinite" (based on available driver resources). Values range from 256KB to 16MB
  - **Incident Resolutions/Bug Fixes/Changes**

- ***Version 3.11 (Released 01/30/2009)***
  - The following apply to changes made from v3.10 to v3.11
  - **Note:** It is recommended that firmware dated 1/26/09 be utilized with this driver release.
  - **New Features**
    - None
  - **Incident Resolutions/Bug Fixes/Changes**
    - Resolved a Kernel Panic caused by running out of resources under heavy I/O
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- ***Version 3.10 (Released 11/18/2008)***
  - **Note:** It is recommended that firmware dated 11/18/08 be utilized with this driver release.
  - The following apply to changes made from v3.00 to v3.10
  - **New Features**
    - Added support for ESAS R30F
    - 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 3.00 (Released 10/2/2008)***

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- **Note:** It is recommended that firmware dated 09/25/08 be utilized with this driver release.
- The following apply to changes made from v2.10 to v3.00
- **New Features**
  - RAID 6 Parity Protection
  - Drive Health Monitoring
  - Drive performance Metrics
  - Write Cache Control
- **Incident Resolutions/Bug Fixes/Changes**
  - Resolved a system hang issue if drives are removed before powering up. Asynchronous event are now purged

- ***Version 2.10 (Released 6/30/2008)***
  - **Note:** It is recommended that firmware dated 06/27/08 be utilized with this driver release.
  - The following apply to changes made from v2.00 to v2.10
  - **New Features**
    - **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.

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        - 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.
    - **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.
  - **Incident Resolutions/Bug Fixes/Changes**
    - Improvements made to the asynchronous event notification to prevent truncation of data in log strings
    - Updates made to RAID management interface to support new features. Note: The 2.10 driver is required to flash any flash bundle with the 2.20 (080627) firmware.
    - Asynchronous events are purged when entering power management to prevent possible system hangs if drives are removed before powering system back up.

- ***Version 2.00 (Released 1/24/2008)***
  - **Note:** It is recommended that firmware dated 01/23/08 be utilized with this driver release.
  - The following apply to changes made from v1.20 to v2.00
  - **New Features**
    - **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.
    - **GUI Improvements:** Added ability to display RAID group properties within the Configuration Tool.
  - **Incident Resolutions/Bug Fixes/Changes**
    - Untagged commands switched from using ordered queuing to simple queuing.
    - The initial heartbeat timeout was reset to 20 seconds to address a shared interrupt issue.

3. Known Issues/Advisements

- If setting the staggered spin up delay parameter, it is recommended that this setting not exceed 4 for Mac OS X systems.
- "Deep" sleep is supported only on Intel Macs. PowerPC Macs will sleep, but not "deep" sleep, so the sleep light will not pulsate. A side effect is that when PowerPC systems are put to sleep, the fan speed will increase to the max until the system is awakened.

4. Affected Products

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Product Name	SKU
ExpressSAS R348 RAID Adapter	ESAS-R348-000
ExpressSAS R380 RAID Adapter	ESAS-R380-000
ExpressSAS R380 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 8:00 PM EST (except holidays and plant closings).

ATTO Technical Support can be contacted via phone or email:

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