



## ExpressSAS Host Adapter 6Gb Flash Bundle Version 100727

### 1. General Release Information

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These product release notes define the new features, changes, known issues and release details that apply to the ExpressSAS 6Gb Host Adapter flash bundle package, version 100727, which was released on 07/30/2010. This information pertains to the flash bundles and BIOS utility associated with the ExpressSAS 6Gb Host Adapter products.

### 2. New Features, Enhancements and Changes

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- **Version 100727 / BIOS V1.50 (Released 07/30/10)**
  - Enhanced uptime concerning command retries during chip resets.
  - Improved Parity calculation algorithm.
  - Discovery SATA command timeouts minimized by SATA drive resets while performing expander discoveries.
  - Changes made to improve the consistency of the state of SATA devices and formatting SATA commands during discovery process.
  - Enhanced Discovery Process by delaying certain SATA commands, while discovery is in progress.
  - Incorporated 1.10 controller firmware.
  
- **Version 100326 / BIOS V1.31 (Released 03/31/10)**
  - For SATA drives, after a Stop Unit command has spun down the media, access commands are completed with a SCSI check condition for the message "Not Ready, Initializing Command required."
  - Incorporated 1.09 controller firmware.
  - Improved adapter negotiation rates for SAS devices behind expanders.
  
- **Version 091022 / BIOS V1.30 (Released 10/29/09)**
  - Enhanced discovery process after expander routing failure detection.
  - The Immediate bit in the Start Unit command enhanced for SATA device support.
  - PHY speed setting added.
  - Discovery resource management enhanced for improved expander PHY routing accuracy.
  - Data overruns for expander discovery commands are enhanced to support inaccuracies with expanders sending an invalid response length.
  
- **Version 090727 / BIOS V1.20 (Released 07/31/09)**
  - Firmware enhancements for I/O's on large topologies and task management
  - Transport layer retries are enabled on all commands for SAS 2.0 compliant devices.
  - SMP PHY Control command for clearing SATA affiliations programmed to use the hard reset function.
  - Expander enhancements which include discovery process reorganization for clearing SATA affiliations. All devices reported to the OS will have sequential target IDs starting with zero.

- SCSI check status for data phase errors and other bus events that occur due to signal integrity problems are now retried
  - EFI driver and configuration programs have been enhanced for x86 and x64 platforms.
  - Changed all drivers to use interrupt polling instead of hardware interrupts for systems that assign the adapter the wrong IRQ.
  - Fixed a problem that would cause the system to hang before listing devices if more than 3 drives are attached.
  - Stability fixes in discovery processing when commands timeout or need to be retried due to bus errors.
  - SATA NCQ error and head-of-line blocking recovery mechanisms improvements.
  - Drive rejection to an OPEN address.
  - The OPEN REJECT RETRY interval is set to 5  $\mu$ s.
- **Version 090320 / BIOS V1.11 (Released 03/24/09)**
    - Added the Device Name field to the SAS Identify Address Frame (an optional field added in SAS 2.0).
    - Resolved an issue during initial device discovery that could result in a driver crash if the device rejects a discovery command.
    - SATA devices behind expanders are no longer reset during discovery
    - Improved SATA NCQ processing so performance is maintained as the queue depth increases
    - Improved port down cleanup to ensure all I/O is completed before destroying devices when multiple ports are instantiated
    - The SMP PHY control command to clear affiliations for SATA devices behind and expander now uses Clear Affiliation function and escalates to the Hard Reset function is necessary
    - SATA NCQ is disabled in NVRAM by default
    - Bus resets will no longer result in resource failures
    - Data under-runs are reported when a SCSI error occurs on the same command
    - Improved Head-of-line blocking detection to expedite SATA error recovery
- **Version 090128 / BIOS V1.01 (Released 02/18/09)**
    - Resolved issues that may cause the driver to crash or hang if a device rejects a discovery command on initial load.
    - Resolved any unexpected target ID changes after a cable pull and reinsertion, when a SATA device is connected behind an expander.
- **Version 081205 / BIOS V1.00 (Released 12/11/08)**
    - Initial release for the ExpressSAS H680 and H608 host adapter products

### 3. Known Issues/Advisements

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- The firmware will not attempt to open simultaneous connections on multiple PHYs to a wide ported end device. This results in write performance limited to the bandwidth of one PHY and a degradation in read performance. A work around in the drivers was created using narrow ports and virtualizing the wide port at the driver level. Testing has shown that the Infortrend EONStor ES A08S-C2132 array and Areca RAID controllers can not function in this topology. As a result, the virtual wide port feature is disabled for these devices when direct attached.
- In certain applications, disabling NCQ may increase SATA performance.
- Wide ported target mode is not supported. Third party target mode solutions that want to configure the adapter as a wide ported end device can do so, but the target must be connected to a host that will instantiate narrow ports.
- ATAPI devices are not supported (e.g. SATA CD and DVD drives).
- SAS multiplexing is not supported.
- SATA port multipliers and port selectors are not supported.

#### 4. Affected Products

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Product Name	SKU
ExpressSAS H680 Host Adapter	ESAS-H680-000
ExpressSAS H608 Host Adapter	ESAS-H608-000
ExpressSAS H6F0 Host Adapter	ESAS-H6F0-000
ExpressSAS H60F Host Adapter	ESAS-H60F-000
ExpressSAS H644 Host Adapter	ESAS-H644-000

#### 5. Contacting ATTO Support

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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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