![ATTO Technology, Inc. logo]

Product Release Notes

ExpressSAS Host Adapter Flash Bundle Version 090727

1. General Release Information

These product release notes define the new features, changes, known issues and release details that apply to the ExpressSAS Host Adapter flash bundle package, version 090727, which was released on 7/31/2009 This information pertains to the flash bundles and BIOS utility associated with the ExpressSAS Host Adapter products.

2. New Features, Enhancements and Changes

- ***Version 090727 / BIOS V1.24 (Released 07/31/09)***
    - The following apply to changes made from version 090424 / BIOS v1.23
        - Incorporated Intel 2.05 firmware
        - Fully functioning EFI driver and configuration programs are now included for x86 and x64 platforms.
        - The device wait time period is terminated if the maximum supported devices are found.

- ***Version 090424 / BIOS V1.23 (Released 04/30/2009)***
    - The following apply to changes made from version 081108 / BIOS v1.21
        - Resolved an issue where, if we are assigned IRQ 0, the BIOS driver will hang the system. This was seen with an H6F0 while booting Windows on a Mac
        - SATA NCQ is disabled in NVRAM by default
        - Incorporated Intel 2.04 firmware which addresses the following issues:
            - Multiple IO timeouts may be observed when using Intel SSD drives
            - Frequent/heavy hot plugging issues.
        - Changed the BIOS driver and configuration program to not use hardware-based interrupts because the Intel SR1560SFHS platform assigns an incorrect IRQ

- ***Version 081118 / BIOS V1.21 (Released 11/18/2008)***
    - The following apply to changes made from version 080509 / BIOS v1.20
        - Added support for ESAS H308
        - Incorporated Intel firmware 2.02
        - Support for toggling NCQ in the BIOS Config Utility

- ***Version 080717 / BIOS V1.20 (Released 7/24/2008)***
    - The following apply to changes made from version 080509 / BIOS v1.10
    - **Incident Resolutions/Bug Fixes/Changes**
        - Implemented fix to correct occasional hangs when displaying units in BIOS

- ***Version 080509 / BIOS V1.10 (Released 5/14/2008)***
  - o The following apply to changes made from version 071019 / BIOS v1.00
    - ▪ Added support for ExpressSAS H30F: With this release, ATTO has released an ExpressSAS H30F Host Adapter model with 16 internal mini-SAS ports for increased connectivity.
    - ▪ Added support for Transport Layer Retries
    - ▪ Added support for the ExpressSAS H30F.
    - ▪ Transport firmware updates:
      - o Force Unit Access is now supported for I/O to non-NCQ enabled direct attached SATA drives or SATA drives behind an expander.
      - o Support added for transport layer retries.
      - o Added support for NCQ for SATA devices behind expanders.
      - o SATA performance improvements in certain environments.
      - o Improved hot-plug functionality.
      - o Enhanced staggered spin-up functionality.
    - ▪ Added boot from CD/DVD drive support.
    - ▪ Added the capability to load the most recent version of the BIOS driver if different versions exist on different adapters. *Note: As the ESAS H-Series initial drivers (v1.00) did not support this functionality, if the 1.00 driver loads first, later drivers will not load.*
    - ▪ Addressed conflicts with loading both H-Series and R-Series drivers in the same system.
    - ▪ Improvements made to BIOS user interface
    - ▪ Addressed issues related to memory corruption
    - ▪ Non-functioning adapters are ignored by the BIOS driver.
    - ▪ Addressed issues with memory corruption when disks with non-512 byte sector sizes are attached.
    - ▪ Added support for more than 8 LUNs.
    - ▪ Improved device wait time processing for values above 64 seconds.
    - ▪ Make sure the Device Wait Count setting does not exceed the maximum of 18 supported devices.
    - ▪ After the initial discovery has completed, devices are presented to the OS in order of ascending SAS address with SMP devices sorted last.

- ***Version 071019 / BIOS V1.00 (Released 10/19/2007)***
  - o Initial release for the ExpressSAS H380 and H308 host adapter products.

3. Known Issues/Advisements

- ▪ Wide ported end devices (e.g. external RAID controllers) are not supported when they are directly attached to the ExpressSAS HBA or when they are behind expanders. The symptoms vary depending upon the SAS topology and the vendor of the wide ported end device. Examples of some of the symptoms are 1) the device will not show any devices, 2) the throughput drops to 10-15 MBS with high queue depth or 3) the system may hang.
- ▪ Daisy chaining three or more enclosures containing LSI expanders on a single adapter port is unsupported. Devices in the third or greater enclosure will not be discovered.
- ▪ There are issues with the firmware correctly reporting data overruns causing the processor device in the AIC 12 bay enclosure and the LITE-ON SHD-16S1S DVD to not be accessible in Mac OS X.

4. Affected Products

Product Name	SKU
ExpressSAS H308 Host Adapter	ESAS-H308-000
ExpressSAS H380 Host Adapter	ESAS-H380-000
ExpressSAS H30F Host Adapter	ESAS-H30F-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:

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