



ATTO Technology, Inc.

Product Release Notes

FastStream SC Firmware Release v3.80

1. General Release Information

These product release notes define the new features, changes, known issues and release details that apply to the FastStream SC line of products, version 3.80, which was released on 12/11/2009.

2. Changes

- **Version 3.80 (Released 12/11/09)**
 - **New Features**
 - **DriveAssure™** implemented. ATTO exclusive feature allows systems to run longer, faster and smoother without interruption of data flow
 - Guaranteed Latency – DriveAssure compensates when one drive in a RAID Group does not respond within a specified period of time.
 - Uses active monitoring of drive response times, retries of reads and writes and alternative methods of data generation, to return data without failing drives
 - Adds ability to perform Media Scans and Media Scans with Parity Fix option
 - **IPv6** support for the RJ-45 Ethernet management port. IPv6 and IPv4 addresses can be set through the ExpressNAV™ Storage Manager
 - **Import drives** – Added option to Manage > RAID Groups to search for new RAID Groups. This feature discovers and maps RAID Groups which exist on drives added from another FastStream or ATTO ExpressSAS RAID Adapter.
 - **Added RAID Group Mappings to the 7700** – Added LUN mappings to the Fibre Channel to Fibre Channel version of the FastStream
 - **Updated Compatibility**
 - **ATTO Celerity OS X Multipathing** – Tested with latest 4Gb and 8Gb Fibre Channel load balancing and failover drivers, updated versions located on product CD
 - **ExpressNAV™ Storage Manager updates**
 - **Updated System Menus** – Created a better flow and consistency with ATTO ExpressSAS RAID products
 - **Incident Resolutions/Bug Fixes/Changes**
 - **Log-in rejected in Windows 2003 with ATTO DSM** – When using the ATTO Windows DSM with the FastStream SC 7700 in Windows 2003 Server, a log-in would be rejected, this now works as expected with a successful log-in

- **Version 3.60 (Released 8/4/09)**
 - **New Features**
 - **This version supports 5500, 7500, 8200 and 8500 Storage Controllers**
 - **New Product Support** – FastStream SC 8200 6Gb SAS to 3Gb SAS/SATA Controller
 - **Email alert setup now includes Test Email button** – Allows user to test setup of email addresses for email alerts
 - **Incident Resolutions/Bug Fixes/Changes**
 - **Improved ExpressNAV functionality**
 - **Improved ID of drives**
 - **New disk icons**
 - **RAID Group mappings displayed on the Configuration Display page**
 - **Search for New RAID Groups** – Allows user to find and automap existing RAID Groups
 - **Save Eventlog and/or Configuration to a file** – Allows user to easily save debug information for tech support.
 - **Updated Cloning Functionality** - allows partial clones of system settings; this feature copies all system settings except for WWN, Serial Number, IPAddress, IPSubnetmask and IPGateway
 - **RAID Group commands improved**
 - Now informs user if RAID Group doesn't exist instead of issuing a syntax error
 - Added the option of applying the command to all RAID Groups
 - **DumpConfiguration command updated** – Configuration details now include RAID Group information.
- **Version 3.54 (Released 4/3/09)**
 - **New Features**
 - **Support for Split Bus Enclosures** – The Enclosure Aware RAID Group Creation feature now supports enclosures which contain more than 1 SAS expander.
 - **Incident Resolutions/Bug Fixes/Changes**
 - **Improved Multipathing Performance** – FastStream has better write performance when used with host based Multipathing.
- **Version 3.53 (Released 3/6/09)**
 - **New Features**
 - **Windows 2008 Server MPIO Support** – The CD now contains a Windows DSM installer for FastStream Storage Controllers to provide host Multipathing functionality in 2008 Server when used with Fibre Channel Host Adapters. This is interoperable with any JBOD storage behind a FastStream Storage Controller.
 - **Improved RAID6 Memory Management** – RAID operation is now more efficient due to an improvement in the memory handling algorithm
 - **Enhanced Rebuild Handling** – The Hot Spare and Autorebuild process now have the ability to check for a stale rebuild configuration after a hot spare/autorebuild substitution
- **Version 3.51 (Released 2/6/09)**
 - **New Features**
 - **Improved Windows 2008 Server Compatibility** – Updated Read Capacity SCSI command functionality with FastStream RAID virtual block devices. This allows the FastStream to be better interoperable with leading SAN Management software packages with the Windows 2008 Operating System.

- **Version 3.50 (Released 1/28/09)**
 - **New Features**
 - **Support for ATTO Celerity Multipathing for OS X and embedded SuSE Linux Multipathing** – Provides improved availability of storage and improved performance when used with the ATTO Celerity Family of Fibre Channel Host Adapters.
 - **Enclosure Aware RAID Group Creation** – Allows users to automatically create one RAID group on each available storage enclosure attached to the FastStream. This allows users to efficiently create RAID groups without the need to manage each enclosure separately.
 - **Dedicated Hot Spares** – Unlike Global Hot Spares, these spares can be assigned to a single RAID group and will not be shared among other RAID groups.
 - **Additional event log messages** – Added messages for Raid Group creation, deletion, add capacity and RAID migration functionality.

- **Version 3.01 (Released 10/30/08)**
 - **New Features**
 - **This version supports FastStream SC models 5500 and 7500 only**
 - **Updated Intel IOP348 SAS Firmware**
 - **This solved many issues with SAS and SATA devices including**
 - Better support for ATAPI devices
 - Improved SATA drive negotiation
 - Now compatible with expander fan out configurations
 - Hot-swapped SAS drives will now be reported correctly

- **Version 3.00 (Released 10/07/08)**
 - **New Features**
 - **This version supports FastStream SC models 5300, 5500, 5700, 7500 and 7700**
 - Merged features from previous release versions (2.81, 2.82, 2.83, 2.84)
 - **Node Name Change** – in previous versions the port name and node name were set as identical; we now derive the port name from its corresponding node name – this may cause a problem on existing SANs. If there is zoning on the fabric when the new code is flashed onto a FastStream, re-zoning will be needed.
 - **New product support**, FastStream SC 5500 SAN RAID Controller features (2) 4-Gb Fibre Channel Host Ports to 8 lanes of 3-GB SAS/SATA via two (x4) MiniSAS ports
 - **Updated Device Support** on the FastStream SC 7500 / 7700 to support 128 physical devices. The SC 5500 support 64 devices and the 5300/5700 support 32 devices.
 - **Added RAID 6 Parity Protection** – this adds an extra layer of reliability to an already reliable RAID stack. Rebuilds with RAID 6, as with RAID 5 do not affect available bandwidth to streaming (large block size) applications. RAID 6 is not available on the FastStream SC 5300 or 5700 models.
 - **Improved Media Error Handling** – Feature which accounts for variances in physical media – reallocates unusable sectors during I/O without impacting performance.
 - **Advanced/Express RAID Initialization** – This feature allows you to choose an express initialization to start I/O immediately after creating RAID groups. This feature is not recommended for new drives, best practice is to Init and Verify drives first.
 - **Configuration Cloning** – This feature has two uses, one, allowing you to clone your current configuration in the event that a FastStream controller needs replacement. All settings include the WWN can be updated to a new controller to minimize downtime. The second use involves cloning a configuration to use on multiple controllers.
 - **SES Management and Monitoring (for SAS and FC Storage)** – The ExpressNAV™ Storage Manager will provide monitoring and phone home notifications for storage enclosures with an SES Processor.
 - **Tape Device Support** – You may attach Streaming Devices (Tape Drives, Optical Drives) behind a FastStream Storage Controller and access them on your SAN in addition to your disk storage. Tape Device Support is not available on the FastStream SC 5300.

- **Support for 4Kb sector size RAID groups** – this is a user configurable option where you may set the sector size anywhere from 512B to 4Kb. Using larger sector sizes allow large volume support (Greater than 2TB).
 - **Improved Performance** – End User applications could see on average up to a 5% improvement in performance.
 - **Improved Host Management** – Feature which allows customers with a requirement for storage access by a large number of hosts to maximize performance in their environment.
- **Version 2.84 (Released 08/11/08)**
 - **New Features**
 - Added extended mode page support
 - This functionality allows additional information about the Target Devices, Target Ports, LUNs and the Vendor ID to be accessed via mode pages
 - OEM Customers will find this feature most useable
- **Version 2.83 (Released 06/27/08)**
 - **New Features**
 - Added SES Pass-through feature (activated via CLI command) for customers to have a method to monitor their storage enclosure.
 - SES Pass-through functionality was tested with a JMR enclosure
 - Added command to address command skewdepth to better accommodate environments where multiple host connectivity is desired
- **Version 2.82 (Released 05/23/08)**
 - **New Features**
 - **Improved GUI Customization via CSS Style Sheets** – Qualified OEM Customers may modify the ExpressNAV™ GUI to an integrated look and feel to their existing style including colors, graphic images and other aspects of the GUI.
 - **Added OEM support for custom Partition Serial Number** – Allows independent software vendors to lock their applications to storage attached the FastStream.
 - **Link for “Powered By ATTO” brand is now OEM Customizable** – OEM Customers can take advantage of this by using the attotech.com website to help promote what we provide as part of their solution. For more details please see Product Management.
- **Version 2.81 (Released 06/13/08)**
 - **New Features**
 - **Added support for Dual Port FC to SAS/SATA FastStream SC 5500E**
 - **Based on version 2.80 of FastStream SC firmware**
- **Version 2.80 (Released 4/23/08)**
 - **This version supports 5300, 5700, 7500 and 7700 Storage Controllers**
 - **New Features**
 - The FastStream Graphical User Interface has been renamed from ExpressNAV 2.0 to the ExpressNAV Storage Manager. This better expresses the functionality provided by ExpressNAV to setup, manage and maintain storage with the FastStream appliance.
 - Provided IOPS improvements to boost low block size performance for IT, Database and Audio applications.
 - Added Hot Swap with Autorebuild. Now in the event of a disk failure, users may replace a failed disk while the system is active and have the replaced drive automatically start a rebuild on that disk to repair the RAID group
 - Improved the ExpressNAV disk scan method, users are now able to view an updated drive list without having to perform a system scan.
 - Several fine tuning parameters have been added to ExpressNAV to give users additional options when setting up RAID groups:

- Added additional interleave setting options to the ExpressNAV Storage Manager custom setup screen. Available settings are now 16/32/64/128/256/512/1024/2048 expressed in 512-byte blocks.
 - A manual mapping option has been added to custom setup
 - The SpeedRead™ setting and help text have been added as a custom RAID group setup option.
 - Added the ability to update firmware from the ExpressNAV Storage Manager GUI so users can update the appliance firmware without the need for Telnet, Zmodem or FTP.
 - Added bootdelay CLI command which sets up a delay period after the FastStream boots up to allow hosts to detect discovered disk targets.
 - For OEM customers using the 7500E embedded product, the option is now available to use only the external SAS ports, internal SAS ports or a combination of both. This allows customers to use the product with external storage, internal storage or a mix of either.
 - Updated to latest SAS firmware from Intel
 - Updated to latest ATTO Celerity Fibre Channel firmware
- **Incident Resolutions/Bug Fixes/Changes**
 - Updated the AutoResume Rebuild command default to be enabled so interrupted rebuilds will automatically resume on startup
 - Added ability to change FCMultiNode in ExpressNAV Storage Manager, previously this was only able to be changed from the CLI screen
 - Updated the N-way mirroring feature in ExpressNAV so it is more user friendly, now users can make multiple mirrors of a RAID1 group with fewer mouse clicks from the Manage page.
 - The system date is now correct when using the Firefox web-browser.
 - Added ability to allow FastStream to identify itself when finding devices.
- **Version 2.71 (Released 7/30/07)**
 - ***This version of firmware supports only the FastStream SC 5000 series***
 - **New Features**
 - Added RAID 4 Functionality which utilizes a single parity drive
 - Added support for creating partitions greater than 2TB for DVRAID™
 - Added an option for audio setup to the SC 5700 (SC 5300 already had this) – this one-button setup supports 3 sessions of DigiDesign ProTools HD
 - Ability to name the Appliance from the GUI, the appliance name will display under the “FastStream” banner on the top of the GUI page. This will allow customers to individually name the FastStream to help identify which product they may be logged into to help avoid changing settings on the wrong product.
 - Addition of a read-only account for monitoring the FastStream appliance
 - Added option for DVRAID to support 8 or 16 drive configurations
 - QuickNAV functionality allows users to scan for other ATTO appliances from the ExpressNAV GUI. By selecting another appliance in ExpressNAV the GUI for that appliance will be brought up in a web-browser window
 - OEM Customization of the GUI now available (able to change banner, logos and text)
 - Now able to identify a FastStream appliance by blinking the alert LED
 - DHCP Setup has been added to the GUI (Enable/disable)
 - Ability to set static IP Address from System Config GUI page
 - Email server now accepts a server host name or a server IP address
 - The ExpressNAV GUI was qualified with Internet Explorer v7
 - Updated Windows drivers to support Windows Vista (32 and 64 bit)
 - Added informational email alerts
 - Added email alerts for drive failures to the SC 5700 (SC 5300 already had this)
 - Improved performance for the One-Click IT and Database setups

- **Incident Resolutions/Bug Fixes/Changes**
 - Fixed issues with reporting the Drive Performance and Health metrics
 - Fixed GUI display error on Initialize and Verify page, drives would not be displayed as de-selected after system scan
 - Modified the CLI command so time may be set while SNTP enabled
 - Fixed an error that prevented deleting a RAID Group in the middle of a rebuild
 - Changed TCP source port to prevent occasional problems when trying to FTP new appliance firmware through a firewall
 - Fixed issues with exiting a telnet session using "Exit" multiple times
 - Fixed interoperability issue with Xyratex array (SC 5700)
 - Fixed issues with using maximum length parameters when setting up email notification (GUI and CLI)
- **Version 1.00 (Released 8/9/07 - 7000 Series only)**
 - ***This is the current version of firmware created for the initial release of the FastStream SC 7000 Series, it is recommended that you upgrade to v2.80 or beyond.***
 - *This code was based on 5000 series version 2.40*

3. Known Issues/Advisements

- When using storage enclosures with LSI expanders, support is currently limited to two levels of expanders. This issue does not occur with other expander manufacturers.
- When using Internet Explorer 7 or 8 in Windows 2008 Server, javascript is disabled by default. The ExpressNAV Storage Manager requires this functionality to be enabled in the browser or else the buttons will not respond. Please enable within the security settings of IE7 and IE8.
- Seagate Barracuda AS Gen 11 disk drives are intended for desktop use. These drives are NOT recommended for use with the ATTO FastStream at this time. Affected models include ST3160813AS, ST3320613AS, ST3500320AS, ST3500620AS, ST3640323AS, ST3750330AS, ST3750630AS, ST31000333AS, ST31000340AS and ST31500341AS. Please visit ATTO or Seagate's website for more information and potential drive firmware updates.
- When connecting wide-ported SAS devices (RAID Controllers) with the FastStream, performance will be limited to the bandwidth single PHY per SAS connection (300 MB/sec). This issue does not occur when using JBOD storage with the FastStream
- When replacing the SAS cable on the 5500/7500 models, drives may not show up in the ExpressNAV Storage Manager. Please power cycle the storage and FastStream to see attached drives.
- When using online capacity expansion, individual drives on the Health and Status Monitor page will show up as CONVRT 0% instead of online; drives and RAID groups will be online and accessible. A reboot of the FastStream will clear this status.
- BlockDevIdentify command does not work correctly for Fujitsu drives.
- Strange characters may be displayed on the finddevices.html ExpressNAV page – ID strings are not properly terminated.

4. Affected Products

Product Name	SKU	Firmware Filename
FastStream SC 5500	FSSC-5500-D00	SC550380.ima
FastStream SC 5500E	FSSC-5500-E00	SC550380.ima
FastStream SC 7500	FSSC-7500-D00	SC750380.ima
FastStream SC 7500E	FSSC-7500-E00	SC750380.ima
FastStream SC 7700	FSSC-7700-D00	SC770380.ima
FastStream SC 8200	FSSC-8200-D00	SC820380.ima
FastStream SC 8200E	FSSC-8200-E00	SC820380.ima
FastStream SC 8500	FSSC-8500-D00	SC850380.ima
FastStream SC 8500E	FSSC-8500-E00	SC850380.ima

5. Manual and GUI Updates

Name	Changes
FastStream	Added new features (Media Scan / IPv6) and updated several screenshots: GUI Changes: <ul style="list-style-type: none">• Diagnostics Menu - Added Media Scan option• Start Media Scan - New Page• Drive Performance and Health - New Media Scan tab• Tasks - New page• Tool tips - Updated for Media Scan• Add/Remove Hot Spares - Added "Perform Media Scan"• System Configuration page - Added IPv6 support• Manage RAID Groups page – button to scan for RAID Groups

6. CD Updates

Program Name	Changes
ATTO Disk Benchmark	Performance measurement tool for Windows added to CD
Multipathing Manual	Added new OS X Multipathing manual to the CD
Multipathing Drivers	Updated ATTO Celerity 4Gb and 8Gb Multipathing Drivers
FastStream Firmware	Updated to version 3.80 for all current FastStream products
QuickNAV Update	New version 3.0 supports OS X 10.6

7. 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
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