



ATTO Technology, Inc.

Product Release Notes

Celerity 16Gb Gen 5 and 16Gb/32Gb Gen 6 Fibre Channel Multipath Director™ Release v1.60MP – Linux®

1. General Release Information

- These product release notes define the new features, changes, known issues and release details that apply to the Celerity 16Gb Gen 5 Fibre Channel adapter product and 16Gb/32Gb Gen 6 Fibre Channel adapter product driver v1.60MP that was released on May 3, 2017. This information pertains to the following operating systems: Red Hat Enterprise Linux 6, 7; CentOS 6, 7; SUSE Linux Enterprise Server 11sp4, 12; OpenSUSE Linux 13.2, 42.1; Ubuntu 16.04 LTS.

3. Changes

- **Version 1.60 (Released 05/03/2017)**

- **Note:** It is recommended that latest firmware available on ATTO website be used with this driver release.
- **New Features/Enhancements**
 - Added support for *atinfo* to display the SFP transceiver serial number
 - Added support for Ubuntu 16.04 LTS
 - Updated builds for kernel 4.3, and later
 - Added support for the Seagate 5825 storage array

- **Version 1.55MP (Released 12/20/2016)**

- **Note:** It is recommended that latest firmware available on ATTO website be used with this driver release.
- **New Features/Enhancements**
 - Added support for Dot Hill 6424 and 6844 storage.
 - Enabled MSI-X interrupt support
 - Modified driver to automatically unload the *attocfg* driver when switching between the MP and standard drivers
 - Reworked *ioctl* code to directly access user memory instead of double-buffering
 - Resolved issue with 32-bit driver builds for 4.x kernels
 - Modified driver to ensure INQUIRY data is correctly reported to the operating system

- **Version 1.51MP (Released 09/01/2016)**

- **Note:** It is recommended that latest firmware available on ATTO website be utilized with this driver release.
- **New Features/Enhancements**
 - Enabled LU-based MP for Quantum QXS storage

- **Version 1.50MP (Released 06/30/2016)**

- **Note:** It is recommended that latest firmware available on ATTO website be utilized with this driver release.
- **New Features/Enhancements**
 - Added support for Celerity 16Gb/32Gb Gen 6 Fibre Channel Host Bus Adapters.
 - Added support for LU-based multipathing.
 - Added support for configuring an alias.
 - Addressed a potential for failover to fail when large numbers of LUNs are present.

- Addressed issues that could cause excessive completion times for failover or discovery.
- **Version 1.45MP (Released 01/21/2016)**
 - **Note:** It is recommended that latest firmware available on ATTO website be utilized with this driver release.
 - **New Features/Enhancements**
 - Updates to CLI tools and readme
 - Resolved a connection issue with previous versions of EMC storage
- **Version 1.40MP (Released 8/06/2015)**
 - **Note:** It is recommended that latest firmware available on ATTO website be utilized with this driver release.
 - **New Features/Enhancements**
 - Implemented T10-PI management improvements
 - Addressed a kernel panic that occurs during boot
 - Added support for Dot Hill arrays
 - Integrated miscellaneous bug-fixes
- **Version 1.35MP (Released 3/19/2015)**
 - **Note:** It is recommended that latest firmware available on ATTO website be utilized with this driver release.
 - **New Features/Enhancements**
 - Added support for Fedora 21
 - Added support for SUSE Linux Enterprise Server 12
 - Now support the ability to map LUNs to LUNs and targets to targets
 - ALUA devices are now allowed to change the path mode from disabled to the default
 - Active/non-optimized paths are activated in the same manner as standby path by default.
 - Corrected identifier determination for some storage. As a result, previously saved configuration will no longer be in effect for some arrays. The configuration must be resaved after upgrading.
 - Addressed a timing issue when mounting volumes.
 - Fixed an issue of seeing LUNs in a direct attached environment.
 - Addressed an event logging issue.
 - Resolved a memory leak issue.
 - Addressed an I/O failure during controller reset.
- **Version 1.32MP (Released 1/27/2015)**
 - **Note:** It is recommended that latest firmware available on ATTO website be utilized with this driver release.
 - **New Features/Enhancements**
 - Addressed an exchange leak in HwContPlogiReq
- **Version 1.31MP (Released 1/15/2015)**
 - **Note:** It is recommended that latest firmware available on ATTO website be utilized with this driver release.
 - **New Features/Enhancements**
 - Added support DotHill arrays
 - Added support for Quantum StorNext arrays
- **Version 1.30MP (Released 10/30/2014)**
 - **Note:** It is recommended that latest firmware available on ATTO website be utilized with this driver release.
 - **New Features/Enhancements**
 - Added support for RHEL 7
 - Addressed a model description error
 - Fixed a kernel panic during local multipathing command processing
 - Addressed an issue where HBAs failed to properly recover from a controller reset.

- **Version 1.25MP (Released 9/25/2014)**
 - **Note:** It is recommended that latest firmware available on ATTO website be utilized with this driver release.
 - **New Features/Enhancements**
 - Improved IO performance for transactional Linux SAN environments
 - Increased default queuing parameters from 128 to 512
 - Enhanced diagnostic capabilities with improved event logging
 - Added new display information for atmpinfo
 - Added support for atreset
 - Added support for device display in atinfo
 - Addressed an issue where IO to a LUN could be stalled
 - Set default so that active/non-optimized paths are activated for IO in the same manner as standby paths
 - Addressed a failover issue when the preferred path is removed
 - Reduced the time it takes to discovery newly added LUNs using the rescan paths button.
 - Resolved an issues where MultiPath Director was no longer available after reboot

- **Version 1.10MP (Released 2/06/2014)**
 - **Note:** It is recommended that latest firmware available on ATTO website be utilized with this driver release.
 - **New Features/Enhancements**
 - Corrected an issue with path discovery for paths that are deactivated immediately after being found.
 - Addressed an issue with deactivating paths that are disabled due to I/O errors.
 - Fixed an issue where discovery or failover of a path could be delayed by a transitioning asymmetric access state for a port group that did not apply to the path.
 - Resolved an issue where simultaneously reporting device changes on multiple HBA channels could result in the multipathed devices from being activated
 - Addressed an issue where path selection could prematurely fail an I/O when the last remaining path failed simultaneously
 - Corrected an issue where path rediscovry would not activate the path after the link down timeout previously expired
 - Paths that have a scan pending are considered retrying so I/O is suspended when no paths are active.
 - Feature added to allow path activations and deactivations during the link down timeout period to coordinate with other device events to prevent invalid path states.
 - Resolved a system hang on RedHat 5.9.
 - Fixed a kernel panic on StorNext MDC during controller firmware update test.
 - Addressed an issue where LUNs are not presented properly on SUSE 11 SP3.
 - Fixed multiple problems when handling aborted commands.
 - Corrected soft lockups reported during MP scans.

- **Version 1.01MP (Released 6/27/2013)**
 - **Note:** It is recommended that latest firmware available on ATTO website be utilized with this driver release.
 - **New Features/Enhancements**
 - Corrected Config Tool reporting error where the same LUN shows multiple times with MultiPath Director.

- **Version 1.00MP (Released 12/21/2012)**
 - **Note:** It is recommended that latest firmware available on ATTO website be utilized with this driver release.
 - **New Features/Enhancements**
 - Initial release of Linux multipathing drivers for the Celerity 16Gb FC adapters.

4. Known Issues/Advisements

- If the card is placed in certain slots of an Intel Grosse Point machine, the system may not boot.
- Multiple direct connections to a Xyratex drive array does not work.
- The system will not boot if the card is placed in an MSI 277A-GD80 motherboard and the System BIOS PCI ROM Priority is set for EFI Compatible ROM. The System BIOS is trying to run both the EFI and Legacy BIOS at the same time. To work around this issue, set the System BIOS PCI ROM Priority setting to Legacy ROM.
- After creating an entry in /etc/fstab for a LUN with file system check enabled, a subsequent reboot may cause the file system check to fail if the LUN is not ready. The work around is to use the "_netdev" option in the /etc/fstab entry. For example:
 - /etc/fstab entry with _netdev option:
UUID=xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxxx/fs0 ext4 defaults,_netdev 02
- In Linux environments, set "intel_immou=off" in the kernel when using Multipath Director (MPD) drivers. It is also recommended that VT-d be disabled in the system BIOS (if available)

5. Affected Products

Product Name	SKU
Celerity FC 164E	CTFC-164E-000
Celerity FC 162E	CTFC-162E-000
Celerity FC 161E	CTFC-161E-000
Celerity FC 81EN	CTFC-81EN-000
Celerity FC 82EN	CTFC-82EN-000
Celerity FC 84EN	CTFC-84EN-000
Celerity FC-164P	CTFC-164P-000
Celerity FC-162P	CTFC-162P-000
Celerity FC-161P	CTFC-161P-000
Celerity FC-322E	CTFC-322E-000
Celerity FC-321E	CTFC-321E-000
ThunderLink FC 2082 Desklink Device	TLFC-2082-D00
ThunderLink FC 2162 Desklink Device	TLFC-2162-D00

6. 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. Please visit <https://www.attotech.com/support/> for hours of operation.

ATTO Technical Support can be contacted via phone or email:

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