



Quantum LTO-6 Release Notes

Product	LTO-6 HH Serial Attached SCSI
Firmware Version	Half Height Code: KAJ9
Supported Web Browsers	Firefox
	Chrome
	Microsoft Edge
	Apple Safari
Date	August 2020

Contents

Introduction	2
Firmware Code Update	2
Firmware Version Identification	2
Compatibility	2
New Features and Enhancements	3
Firmware Change Summary	3

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Introduction

These release notes apply to the Quantum LTO-6 Half Height distribution product.

Firmware Code Update

The KAJ9 firmware code update provides:

- Increased overall reliability
- Improved tape handling
- Reduction of any possibility of errors
- Continued enhancements to diagnostic capabilities

Firmware Version Identification

These drives will have similar inquiry string as previous Quantum models and presented on the Standard Inquiry Page and Inquiry Device Identification Page 83h as:

- Vendor Identification = 8 bytes of ASCII data: "Quantum" followed by a space
- Product Identification = 16 bytes of ASCII data "ULTRIUM-HH8" followed by 5 spaces
- Product Revision Level = 4 bytes of ASCII data "YMDV"

Compatibility

LTO-8 HH compatibility requirements:

- The LTO-8 HH drive has a dual port SAS-2 6-Gbps interface
- Please use the Drive Compatibility Guide tool found on Quantum.com for software and hardware compatibility

New Features and Enhancements

This is a FW release for LTO-8 HH SAS drives. Changes described below are for Half High code KAJ9 FW version.

This update is intended, among other things, to increase overall reliability, improve tape handling, further reduce any possibility of error, and provide continued enhancements to diagnostic capabilities.

Firmware Change Summary

Bug Fixes

Issue	Description
FSC 781X while reading/writing causing Tape Alerts 3,4 and 39	A problem has been resolved where in some cases the drive was using tension compensation (intended to deal with Tape Dimension Stability issues) when it was not necessary.
FSC 7060 on READ causing Tape Alerts 3, and 5	This change added a recovery step to reposition the read head to the position it was at when the read verify was done during the write operation. This helps to deal with mechanical variation between certain drives and tapes.
Locate or space failure causing TA 3 and TA 5	A Locate failure positioning to a file mark near beginning of wrap resulting in FSC 6353 (Position error on media) with a secondary FSC 7230 (Media inconsistent fragment). This is very rare in the field.
A drive could hang or fail for a FSC 601D on Space to EOD, causing a TA 3	This is a situation where the drive could hang or fail, seen when the drive is spacing/locating to EOD on a tape where a previous WRITE command had failed with a hard write error.
Drive could Time Out on WRITE command without sense data	The drive could sometime read register values that were transient. Code was added to wait until the values were stable before allowing the register values to be read.
Load fails with FSC 2C50 without any Tape Alerts	A very rare situation seen when a tape which failed to partition will fail when it is next loaded into a drive. The EOD information saved to the CM after the failure has been modified to allow the cartridge to load

Issue	Description
Enabled diagnostic information to dumps on failed Long Erase command	If an ERASE command failed, there was no diagnostic information included in the drive logs for problem determination.
FSC 7060 on READ Command causing Tape Alerts 3, and 5	An unreadable data set was generated at the beginning of a wrap due to a Data Flow Controller (DFC) error. When the Read after Write check was carried out, the drive would fail reporting a 0x7060 error. Subsequent attempts to read the tape will fail at the same point. This was a very specific timing issue that is only seen at the beginning of wrap. A change was made so DFC recovery works in this case as it does when away from beginning of Wrap.
READ ERPs	Improved READ ERPs for the dataset in error to reduce FSC 7060 causing Tape Alerts 3, and 5.
Host interface may incorrectly log byte counts when a CRC spans a burst boundary	Fix the boundary case so that the byte count is correct.
Broken tape at the leader pin and FSC 2E02 causing TA 4, 33 and 55	An issue could cause a drive with a bad mechanical clutch to sometimes break the tape near the leader pin. A change was made to wait clutch test completion prior to picking the pin to reduce the possibility of this problem.
Failure of a SPACE/LOCATE command with FSC 6353, causing a TA 3	Modify Error Recovery to find the correct write pass by skimming beyond the next fragment.
Read error FSC 7274 causing TA 3 and 5	An incorrect entry was made during a repeated suspended write append which caused an FSC 7274 on readback.
Drive hangs on retention unload during low power mode	If the drive was in low power mode (entered into after 20 minutes without activity) and a retention unload was requested, the drive could hang due to a command queue problem.
Drive write performance might appear to be low	The drive incorrectly handled when a manual recalibration was done and reported slower than normal write speeds.
FSC 7346 on Write, causing a TA 3	During a write append, it was possible for the drive to go through an Error Recovery step that incorrectly exited and fail with a 0x7346 error.
CM usage info not updated	Suspended writes append entry in CM usage info is not updated. It always indicates zero.

Issue	Description
Fix radius calculation for LTO7+ tapes causing 78B5 error with TA 3 and 4	Due to a wrong parameter, in the rare case where the drive loses servo in a highspeed locate at logical EOT, the drive may go past physical EOT
Multi-initiator on SAS may stop receiving frames	Prevent race condition on multiple initiator SAS that interfere with open request.
SAS command Timeout	When being accessed by multiple SAS initiators, a rare race condition that could cause the drive to timeout in handling multi-initiator change of initiators.
Drive may do unnecessary host interface retries	Retry counts were not always cleared for test unit ready and request sense commands causing the drive to think it needed to issue host retries.
Change band change brushing criteria to less frequently	Minimize the number of brushes during a clean cycle based on data band changes.
Band change brush disable if not green media	Band change brushing cycle is disable if tape is not green media.
Improve stop write performance	This change helps address a problem seen mostly on LTO8-HH drives where the drive shows Capacity Loss and performance issues caused by excessive Stop Writes (tracking problems). Changes in tape tension control were made to improve the operation of tape/drive combinations where this problem is seen.
Drive hangs during head brush	If two conditions were met for a head brush. In that case one might be called while another one was on going, which could hang the drive.
Drive hangs on unload	If the drive was near BOT and an UNLOAD was issued, the drive could hang.
FSC 2E00 on mid tape failure	Drive FSC should be 2E07.

Functional Change Requests (FCR)

There are no FCRs for the LTO-6 Half High code KAJ9.

Contacting Quantum

More information about this product is available on the Service and Support website at www.quantum.com/support. The Service and Support Website contains a collection of information, including answers to frequently asked questions (FAQs). You can also access software, firmware, and drivers through this site.

For further assistance, or if training is desired, contact Quantum:

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