



IBM Drive Firmware Release Notes

Release	PA60 (FH) PA61 (HH)
Supported Product	IBM Gen 9 FH and HH Drives
Date	November 2022

Overview

IBM has released a firmware update PA60 (Full Height) and PA61 (Half Height). This firmware affects all Gen 9 Full Height (FH) and Half Height (HH) Drives. This update is intended to increase overall reliability, improve tape handling, further reduce any possibility of error, and provide continued enhancements to diagnostic capabilities. Firmware fixes since FH P372 code and HH code P373 follow:

© 2022 Quantum Corporation. All rights reserved. Your right to copy this manual is limited by copyright law. Making copies or adaptations without prior written authorization of Quantum Corporation is prohibited by law and constitutes a punishable violation of the law. ActiveScale, DXi, DXi Accent, FlexSync, FlexTier, iLayer, Lattus, Quantum, The Quantum Logo, QXS, Scalar, StorNext, SuperLoader, Vision, and Xcellis are either registered trademarks or trademarks of Quantum Corporation and its affiliates in the United States and/or other countries. All other trademarks are the property of their respective owners. Quantum specifications are subject to change.

Fixes That Affect All Drives

Issue	Description
Fix breakage in contents of read buffer ID 08h	Due to a code bug, the read buffer 08h WWPN field was returning all zeroes. Code was corrected so the drive will return WWPN of requestor correctly.
Media optimization improvements	Added additional improvements to the media optimization process to more accurately characterize all LTO media.
Load failed with an FSC 2C40	If a cartridge fails during a capacity scaling operation, the drive would incorrectly report this as a refurbished cartridge and fail the load with a FSC 2C40.
Incorrect FSC's reported against refurbished tapes	When a refurbished cartridge gets loaded, the drive posted a FSC 5225 & FSC 7234 which was incorrect.
Drive failed to send status to a Write command	Fixed an issue to correctly respond to a Write command while ILEP (Internal Label Encryption Policy) was enabled.
Improved Media Optimization reliability	Changed the media optimization code to better handle invalid servo samples which could cause the Media Optimization to fail with a 2C60.
Timeout on READ	The drive attempted some needless ERPs (Error Recovery Procedures) which caused the READ to timeout.
Drive fails WRITE with a FSC 6000	Due to invalid sensor status, the drive incorrectly thought that it needed to LOAD an already loaded cartridge.
Drive fails a LOAD from hold position	Changed logic to clear previous load variables just before threading a cartridge.
Time out on a READ Command	Drive used an invalid LPOS during an ERP.
Write Timeout	Due to a race condition, the WRITE Command was not ready for the return of a CRC failure, so it hung waiting for status that had already provided by a lower level of code.
READ failed with FSC 7226 on a partitioned cartridge	Changed logic so the Drive would refer to the appropriate value while reading partitioned media.
Locate failed with FSC 7220	Drive reports an error incorrectly while locating to different partition.
Locate/Space failed with FSC 6017 due to timeout	The ERPs for an invalid LPOS were changed to avoid continuing the same recovery action which was not working. The ERP progression was changed so when a first retry fails, the drive will then go to rechuck retry to avoid the timeout.

Issue	Description
TA31 incorrectly reported	When a drive failed TDS cartridge calibration with FSC 2C60, it would incorrectly post a TA31.
Drive fails WRITE with a FSC 7855	The drive was having trouble getting the current position on tape during a wrap turn, which caused the drive to time out.
Drive fails cartridge formatting at EOD with FSC 6402	Drive failed the FORMAT command due to an error of a previous operation not being cleared.
Drive failed to Locate/Space with FSC 6353	ERP was added so if an invalid LPOS on the skim was detected, the drive would retry the position with a read.
Drive failed with FSC 7060	Incorrect tension was being used during an ERP. The tension was changed to nominal to improve recovery chances.
Correct DHCP settings	Changed drive DHCP request option from 60 to "tape_drive".
Drive did not eject the cartridge after an MTR	The low-tension rewind failed during the Mid Tape Recovery (MTR) due to in an invalid LPOS, and the drive to failed with a 4105. Corrected the callback when an invalid LPOS is encountered during a retention rewind.
Command failed with FSC 78C1 & 2E13	Due to a race condition, as the drive was doing a power-down unthread, a command was sent that needed the tape to be reloaded. The drive interrupted the unthread but could not reload the tape and the error was posted. The code was changed to complete the unload and then reload the tape.
Drive failed with FSC 78B5 at EOT	A change was made to better control the band change at very close to physical EOT.
Read failed with FSC 6017	When an unexpected BUFFER_FULL occurred, the drive checked too many data segments which caused mis-detects. Limited the number of segments to check if buffer is full.
Drive failed with an incorrect FSC 4105	The drive incorrectly posted an FSC for recovered operation. The drive should post the correct FSC through the call stack within the drive.
READ failed with FSC 7175 at EOW	Changed the ERP behavior to read to the latest data set write pass at the wrap turn.
401D error failure occurred on reading	Added read retry ERP for this case, to recover from this failure.

Functional Change Requests

Issue	Description
Implement MAM attribute 1100h for LTO	Added MAM attribute 1100h for LTO which provides the total tape motion meters for that cartridge.
Media related Telemetry data collection for specific OEM	N/A.
Implement new log page 39h[02h]	This FCR adds a method to return the SFP For FC Drive from page A2h to the host and library over LUN 0.
Implement MAM attribute 1002h	Adding parameters to provide MAM attribute User Defined Cartridge ID.

Fixes That Affect Only Certain Drives

Library Drives

Issue	Description
An sADT frame may have incorrect data if sent during the 100ms delay after Port Login	Due to a race condition, the drive may only return 1 byte of the required payload during this time.

FC Drives

Issue	Description
LP 11h[010?h] may wrongly report PIC1 when FC port offline	Certain offline conditions may report incorrect port status changed to always report PIC=0 when port offline.

SAS Drives

Issue	Description
The SAS drive may return 18 bytes of the 96 bytes of sense data	Fixed the length check to ensure the correct number of sense bytes is returned.

Contacting Quantum

Contacts

For information about contacting Quantum, including Quantum office locations, go to:

<https://www.quantum.com/aboutus/contactus/index.aspx>

For further assistance, or for training opportunities, contact the Quantum Customer Support Center:

Region	Support Contact
North America	1-800-284-5101 (toll free) +1-720-249-5700
EMEA	+800-7826-8888 (toll free) +49 6131 324 185
Asia Pacific	+800-7826-8887 (toll free) +603-7953-3010
For worldwide support: https://www.quantum.com/en/company/contact-us/	

Comments

To provide comments or feedback about this document, or about other Quantum technical publications, send e-mail to:

doc-comments@quantum.com