

IBM TotalStorage® DS8700 Disk Storage 1 Microcode Bundle 76.31.32.0 v2 Release Note Information

Release Date: November 17, 2012

VRMF Level Data Results:

VRMF level From:	76.31.17.0
VRMF Level To:	76.31.32.0
Report for:	All DS8700

Code Bundle Contents

DS800 Code Bundle Level	SEA or LMC Version: Used with dscli <i>ver</i> command.	CLI Client Level	Storage Manager Code Level
76.31.32.0	6.6.31.45	6.6.31.44	5.6.31.1073

Overview of new features and functions supported by Microcode Release 76.31.17.0 for DS8700 , 242x model 941.

Features at a glance:

- Support for Hyperswap on AIX

General:

- Improved PCIe fabric error handling, fault isolation and warmstart reduction
- Easy Tier performance improvements

This is a new microcode release only supports the DS8700.

Select Modifications Included in this Release Note:

This is a list of some modifications contained across one or more LIC (License Internal Code) or microcode release(s). The potential impact is variable. Specific environments may aggravate or degrade the potential impact. Problem(s) fixed and reported in this release note may not be in higher levels of code bundles.

Definition of Problem Severity:

- 1 High Impact - Acute: An irrecoverable error with potential loss of data.
- Serious: An irrecoverable error with potential loss of access to data.
- 2 Moderate - A function not operational and/or performance might be degraded.
- 3 Service - A recoverable error (no impact) and service improvements.
- 4 Improvements - Improvement changes for better Usability and Serviceability.

HIPER: High Impact problem that is Pervasive: 3 or more occurrences

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Acute: An irrecoverable error with potential loss of data.

Transient error on PCIe bus results in host adapters with LRC errors

- 1. Problem Description:** A transient error on the PCIe bus results in multiple host adapters with LRC errors. This can result in multiple tracks to be pinned non-retryable in cache due to a microcode logic error. The error handling for specific transient errors on the PCIe bus is being changed.
- 2. Potential Impact of Problem:** loss of data
- 3. Problem Severity:** HIPER
- 4. Pervasive Problem:** Yes

ID#: 273640

Track format mismatch detected by cache

- 1. Problem Description:** At the end of a format write cache can detect a format mismatch between the end of track sector and the data track. The track will be restored from NVS but it is the track format descriptor is in error.
- 2. Potential Impact of Problem:** loss of data
- 3. Problem Severity:** HIPER
- 4. Pervasive Problem:** Yes

ID#: 270611

LRC error on PPRC host adapter will suspend the pair

- 1. Problem Description:** If a host adapter detects an LRC error the track will be restored from NVS. If the track is good in cache after restore then the PPRC pair will not be suspended
- 2. Potential Impact of Problem:** PPRC pair suspended
- 3. Problem Severity:** HIPER
- 4. Pervasive Problem:** Yes

ID#: 269342

Serious: An irrecoverable error with potential loss of access to data.

During microcode update a microcode logic error causes loss of access

- 1. Problem Description:** During the time the LPAR is quiesced for update the ownership of the I/O Bays is transferred to the other LPAR. A microcode logic error can cause the transfer to be retried repeatedly and the operational LPAR to encounter a Data Storage Interrupt which will reboot the LPAR.
- 2. Potential Impact of Problem:** loss of access
- 3. Problem Severity:** High Impact
- 4. Pervasive Problem:** No

ID#: 270884

8GB Host Adapter on R6.1 exposed to processor checkstop

- 1. Problem Description:**
<http://www-01.ibm.com/support/docview.wss?uid=ssg1S1003931>
- 2. Potential Impact of Problem:** Loss of access
- 3. Problem Severity:** HIPER
- 4. Pervasive Problem:** Yes

ID#: 258339

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Easy Tier staging tracks that are beyond the end of the extent

- 1. Problem Description:** Easy Tier migration can stage tracks that are beyond the end of the extent. A microcode logic error can repeatedly attempt stage of tracks that are beyond the end of the extent until loss of access occurs.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** HIPER
 - 4. Pervasive Problem:** Yes
- ID#: 270887

Start Pending when SIM is offloaded on a zHPF Start I/O

- 1. Problem Description:** When there is a SIM or PPRC UCNSIO that is not in multihost mode is offloaded to zHPF SIO there will be a start pending to the volume. A PPRC path state change can cause this condition.
 - 2. Potential Impact of Problem:** host I/O timeout, loss of access to volume
 - 3. Problem Severity:** HIPER
 - 4. Pervasive Problem:** Yes
- ID#: 275265

Selective reset surfaces a microcode logic error with FlashCopy

- 1. Problem Description:** When the channel issues a selective reset there can be a microcode logic error that causes a warmstart and possible job failures.
 - 2. Potential Impact of Problem:** loss of access
 - 3. Problem Severity:** HIPER
 - 4. Pervasive Problem:** Yes
- ID#: 260441

Moderate: A system path is not operational and performance might be degraded.

FlashCopy terminate with ICKDSF does not free space

- 1. Problem Description:** When using ICKDSF with "terminate all" and "free space" parameters on Space Efficient source volumes the space is not released.
 - 2. Potential Impact of Problem:** Space Efficient storage not released
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
- ID#: 268936

Easy Tier SSD rank performance degraded when bandwidth exceeded

- 1. Problem Description:** Easy Tier does not warm demote extends in an efficient manner with random I/O workload is high and sequential I/O has large sized I/O operations.
 - 2. Potential Impact of Problem:** degraded performance
 - 3. Problem Severity:** Moderate
 - 4. Pervasive Problem:** No
- ID#: 270991

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Easy Tier does not calculate rank bandwidth effectively for large I/O sizes

1. **Problem Description:** The rank bandwidth calculation is not efficient for large I/O operations. SSD rank saturation during peak workloads can result.
 2. **Potential Impact of Problem:** performance degraded
 3. **Problem Severity:** Moderate
 4. **Pervasive Problem:** No
- ID#: 272377

LRC error on PPRC host adapter will suspend the pair

1. **Problem Description:** If a host adapter detects an LRC error the track will be restored from NVS. If the track is good in cache after restore then the PPRC pair will not be suspended
 2. **Potential Impact of Problem:** PPRC pair suspended
 3. **Problem Severity:** Moderate
 4. **Pervasive Problem:** No
- ID#: 269342

PPRC path with high error rate cause slow host I/O performance

1. **Problem Description:** When a logical path is experiencing a high link level error rate, such as CRC errors, host I/O performance can be significantly degraded.
 2. **Potential Impact of Problem:** degraded performance
 3. **Problem Severity:** Moderate
 4. **Pervasive Problem:** No
- ID#: 269408

PPRC suspend caused when microcode logic error detects no buffers

1. **Problem Description:** A microcode logic error incorrectly indicates zero buffers are available on the host adapter. This can occur on direct attached PPRC paths.
 2. **Potential Impact of Problem:** PPRC suspend, PPRC path failures
 3. **Problem Severity:** Moderate
 4. **Pervasive Problem:** Yes
- ID#: 273044

Service: A recoverable error, Service improvements.

Improved isolation of Host Adapter LRC errors

1. **Problem Description:** When two host adapters in the same I/O Bay log an LRC error then expand the FRU list to the PCIe card.
 2. **Potential Impact of Problem:** none
 3. **Problem Severity:** Service
 4. **Pervasive Problem:** No
- ID#: 265401

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Unisolated I/O fabric error incorrectly fences host adapter

- 1. Problem Description:** An unisolated I/O fabric error can incorrectly identify a host adapter instead of the PCIe/SPCN card in the I/O bay.
 - 2. Potential Impact of Problem:** loss of path
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** Yes
- ID#: 268274

Easy tier volume migration delayed if no free extents exist

- 1. Problem Description:** Volume migration takes an excessive amount of time if the rank has no free extents. The migration will wait for 5 minutes for extent clean up for each extent migrated off a full rank.
 - 2. Potential Impact of Problem:** degraded volume migration performance
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID#: 270422

Monthly battery test incorrectly fences battery backup units

- 1. Problem Description:** Due to a microcode logic error the monthly battery fences the battery backup units.
 - 2. Potential Impact of Problem:** fenced batteries
 - 3. Problem Severity:** Service
 - 4. Pervasive Problem:** No
- ID#: 268501

Improvements: Improvement for better usability

None

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