| Proposed Draft | Serial ATA International Organization |
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# Serial ATA Revision 3.1 ECN # 064
# Title : HFPDMAQ11: ErrorFlush Cleanup

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## Document History

| Version | Date | Comments |
|---|---|---|
| 0 | May 31, 2012 | Initial release. |
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# 1    Introduction

## 1.1   Problem Statement

In SATA rev. 3.1 there exists two HFPDMAQ11: ErrorFlush state machines with different descriptions and different branches.

## 1.2   Solution Summary

Replace the second HFPDMAQ11: ErrorFlush state machine with HFPDMAQ13: SendStatus.

## 1.3   Background (optional)

## 2    Technical Specification Changes

### 2.1    <Title of section being changed>

[editor note: Existing text is black. New text is marked as underlined in blue color. Material to be deleted is red with strikethrough markings. ]

## 3    [Editor's note 12] Host Command Layer protocol

### 3.1    [Editor's note 12.1] FPDMA QUEUED command protocol overview

This high-level state machine describes the behavior of the host for the Native Command Queuing command protocol. The host behavior described by the state machine may be provided by host software and/or host hardware and the intent of the state machines is not to indicate any particular implementation.

> This class includes:
> * a) READ FPDMA QUEUED;
> * b) WRITE FPDMA QUEUED;
> * c) NCQ QUEUE MANAGEMENT;
> * d) RECEIVE FPDMA QUEUED; and
> * e) SEND FPDMA QUEUED.

### 3.2    [Editor's note 12.1+1] FPDMA QUEUED command protocol

| HFPDMAQ11: ErrorFlush | Retire failed queued command with status set to error condition reported by device. Flush all allocated native queued command tags. Flush pending native queued commands from host command queue with system-specific error condition or re-issue pending queued commands. | | |
|---|---|---|---|
| | 1.    Unconditional | → | HFPI0: Idle |
| HFPDMAQ12: RetrieveRequest_ SenseDMA | Receive Data FIS with Queued Error Log contents | | |
| | 1.    Data FIS reception complete | → | HFPDMAQ13: SendStatus |
| HFPDMAQ1113: SendStatus ErrorFlush | Request transmission of a Register Device to Host FIS | | |
| | 1.    FIS transmitted | → | HFPDMAQ11: ErrorFlush |

**HFPDMAQ11:  ErrorFlush,:  Whenif** in this state, the Command layer retires the failed queued command with the error status set to the error condition reported by the device. It flushes all allocated native queued command tags, and flushes pending native commands from the host command queue with system-specific error condition or re-issue pending queued commands

**Transition HFPDMAQ11:1:** After the error flush actions have been completed, it shall transition to the HFPI0: Idle state.

**HFPDMAQ12: RetrieveRequest_SenseDMA~~:~~: ~~T~~this state is entered ~~when~~if the device** has the data ready to transfer a data FIS to the host containing the Queued Error Log contents.

~~When~~If in this state, the device shall request that the Transport layer transmit a data FIS containing the data. The device command layer shall request a Data FIS size of no more than 2 048 Dwords.

**Transition HFPDMAQ~~13~~12:1~~,~~:** ~~When~~if the FIS has been transmitted, the device shall transition to the HFPDMAQ13: SendStatus state.

**HFPDMAQ13: SendStatus~~:~~: ~~T~~this state is entered ~~when~~if the device has transferred all of** the data requested by the command or has encountered an error that causes the command to abort before completing the transfer of the requested data.

~~When~~If in this state, the device shall request that the Transport layer transmit a Register Device to Host FIS with register content as described in the command description in the ATA8-ACS standard and the Interrupt bit set to one.

**Transition ~~DDMAI2~~HFPDMAQ13:1~~,~~:** ~~When~~if the FIS has been transmitted, the device shall transition to the HFPDMAQ11: ErrorFlush state.