

**Proposed
Draft**

**Serial ATA
International Organization**

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Title: Support Cache Behavior Bit Clarification

Proposed change, new functionality, or behavior to Serial ATA Revision 3.3

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Document History

Version	Date	Comments
01	03/30/2017	Initial draft
02	04/24/2017	Added comments from previous discussion

1 Introduction

This proposal clarifies device behavior when the SUPPORTS CACHE BEHAVIOR bit is cleared to zero in the SUPPORTED OPTIONS field.

2 Summary of the problem

In SATA 3.3, the HYBRID CHANGE BY LBA RANGE subcommand does not specify the device behavior when the SUPPORTS CACHE BEHAVIOR bit is cleared to zero. This ECN adds clarification for that case.

3 Proposed changes

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

13.7.7.2.11 SUPPORTED OPTIONS field

The SUPPORTED OPTIONS field (see Table 117) indicates that optional behaviors are supported.

Table 117 – SUPPORTED OPTIONS field

Bit	Description
7:2	Reserved
1	SUPPORTS CACHE BEHAVIOR bit
0	MAX PRIORITY BEHAVIOR bit

If the SUPPORTS CACHE BEHAVIOR bit is set to one, then the device supports per command tagging of the HYBRID CHANGE BY LBA RANGE subcommand to control the movement of logical sectors into the non-volatile caching medium if a command specifies a hybrid priority level other than the Max Priority (see 13.6.6.5.1).

If the SUPPORTS CACHE BEHAVIOR bit is cleared to zero, then the device shall ignore the setting of the CACHE BEHAVIOR bit in the HYBRID CHANGE BY LBA RANGE subcommand (see 13.6.6.5) and the subcommand shall be processed as if the CACHE BEHAVIOR bit were cleared to zero.

If the MAX PRIORITY BEHAVIOR bit is set to one (see 13.20.2.2), then the device shall:

- a) insert logical sectors into the non-volatile caching medium if a command specifies the Maximum Hybrid Priority Level;
- b) abort any command that specifies the Maximum Hybrid Priority Level if there are not enough available logical sectors in the non-volatile caching medium;
- c) support the HYBRID EVICT subcommand (see 13.6.8); and
- d) support the HYBRID CHANGE BY LBA RANGE subcommand (see 13.6.6).

If the MAX PRIORITY BEHAVIOR bit is cleared to zero (see 13.20.2.2), then the device should insert logical sectors into the non-volatile caching medium if a command specifies the Maximum Hybrid Priority Level.