

## NV Cache Workgroup Meeting Notes

2007/01/23 from 9:00am to 11:40am

Via Teleconference Call

This note is summarized by Joseph Chen

### 1. Clarify the IDENTIFY Word 214, NV Cache Capabilities (Frank S.)

Frank indicated that Vista checks bit0 and bit4 to use the NV Cache Feature Set. The group has agreed to the following definition of bit0 and bit4 of the IDENTIFY Word 214 for backward compatibility.

Further more the group is looking at possibility of adding bit5 and bit6 to describe the NV Cache feature set. Adding of these two bits would make this function consistent with other feature set.

In addition the group agreed to the concept of the non-volatile flash is part of the media. As such the bit2 and bit3 were removed.

Bits	Descriptions	Comments
BIT6	NV Cache Feature Set Enabled	this bit needs more discussions
BIT5	NV Cache Feature Set Supported	this bit needs more discussions
BIT4	NV Cache Feature Set Supported and Enabled	This value is the 'and' of bit 5 and bit 6 of this word
BIT3	<del>NV Cache Change Mode Command Supported</del>	The group agreed to remove this bit
BIT2	<del>NV Cache Flush Mode Selection (Flush all the way or not) —— 0: shall flush to NV (default mode) —— 1: shall flush to media</del>	The group agree to remove this bit
BIT1	NV Cache PM Enabled	NV Cache Set and Return from PM subcommand will modify this bit
BIT0	NV Cache PM Supported	

In addition we need to remove Change Mode Command definition.

### 2. Clarify REMOVE LBA(S) FROM NV CACHE PINNED SET Command (By Frank S.)

#### 2.1 Need terminology clarification on the "media" and "non-volatile."

We want FUA and Flush to put data on the non-volatile medium. And that both NV Cache and rotating media are included in this non-volatile medium (non-volatile is the keyword, need to add the definition of "non-volatile" in the glossary section. Suggest adding definition of terminology of "volatile" too.).

#### 2.2 Add description to the section 7.21.7.1 to explain the REMOVE LBA FROM NV CACHE PINNED SET – B6h/11h

"It is not required to move any of the data affected by this command out of the NV cache."

### 3. Clarification on Query Misses command (Frank S.)

Frank requested make the following clarifications on the Query Misses command:

- A. It records only read misses.  
Resolution: We agreed with the language "read misses." In addition we need to define what is "read misses."
- B. It clears the misses buffer on spin down or power down  
Resolution: TBD on spin down, Frank to follow-up with more information in the Feb. Meeting. Agreed that it is cleared after processing a power on reset.)
- C. It records misses until the 512 byte buffer fills up.  
Resolution:
  - 1. Add a statement to indicate it is the "first" 64 entries of the misses.
  - 2. The group agreed to review the possibility of extending the buffer size beyond 512 bytes.

#### 4. READ VERIFY SECTOR command clarification (Jim H.)

Resolution: This command shall be handled the same way as FUA and Flush. The Read Verify is done on the non-volatile medium.

#### 5. Enable WRITE READ VERIFY Feature Set Clarification (Jim H.)

Jim proposed that this command should be treated the same way as FUA and Flush. This data of the command can be written to the non-volatile and verify on the same non-volatile area. Jim suggested vendors take a detail look on this suggestion and review it in Feb. meeting. One of the question for this command is that would this command treated as an exception case since the initial of the intent of this command is defined for the rotational media. Summit is to bring in information in Feb. Meeting for this clarification.

#### 6. Clarify Implementation of the DCO SET command to clear the NV Cache Feature Set Supported (Joseph C)

When using DCO SET command to clear the "Allowing report of the NV Cache Feature Set Supported" bit there is a pre-condition to maintain the data consistency. The group had defined the prerequisite for the DCO SET as "All NV Cache data shall be unpinned and flushed." Otherwise, the DCO SET shall be aborted.

#### 7. NV Cache Command Table (Jim H.)

Jim indicated that there is a need to separate the host VS command and device VS command on the command table. Jim propose to split the current VS area into two areas with each are has 16 command codes.

Resolution: Will review this request in Feb. Meeting. Vendors are encouraged to check their internal implementations.

Meeting adjourned at 11:40am