NVM Express Technical Errata

Errata ID	**002**
Change Date	**2/7/2013**
Affected Spec Ver.	**NVM Express 1.1**
Corrected Spec Ver.	

Submission info

Name	Company	Date
John Carroll	Intel	1/8/2013
Peter Onufryk	IDT	1/8/2013
Frank Chu	HGST	1/8/2013
Jason Gao	WDC	1/15/2013

Clarify NUSE and NCAP accuracy in identify namespace

Add clarification how to clear Reservation Log Page Available event

Clarify Security send/receive length field

Miscellaneous typos.

Description of the specification technical flaw:

Modify a portion of Figure 84 in section 5.11 as shown below:

Bytes	O/M	Description
23:16	M	**Namespace Utilization (NUSE):** This field indicates the current number of logical blocks allocated in the namespace. This field is smaller than or equal to the Namespace Capacity. The number of logical blocks is based on the formatted LBA size. When using the NVM command set: A logical block is allocated when it is written with a Write or Write Uncorrectable command. A logical block may be deallocated using the Dataset Management command. A device may report NUSE equal to NCAP at all times if the product is not targeted for thin provisioning environments.

…

27	M	**Metadata Capabilities (MC):** This field indicates the capabilities for metadata. Bits 7:2 are reserved. Bit 1 if set to '1' indicates the namespace supports the metadata being transferred as part of a separate buffer that is specified in the Metadata Pointer. Bit 1 if cleared to '0' indicates that the namespace does not support the metadata being transferred as part of a separate buffer. Bit 0 if set to '1' indicates that the namespace supports the metadata being transferred as part of an extended data LBA. ~~Specifically, the metadata is transferred as part of the data PRP Lists.~~ Bit 0 if cleared to '0' indicates that the namespace does not support the metadata being transferred as part of an extended data LBA.

Modify a portion of section 5.2 as shown below:

The following event types are defined:

- Error event: Indicates a general error that is not associated with a specific command. To clear this event, host software reads the Error Information log using the Get Log Page command.
- SMART / Health Status event: Indicates a SMART or health status event. To clear this event, host software reads the SMART / Health Information log using Get Log Page. The SMART / Health conditions that trigger asynchronous events may be configured in the Asynchronous Event Configuration feature using the Set Features command (see section 5.12).
- I/O Command Set events: Events that are defined by an I/O command set.
    - NVM Command Set Events:
        - Reservation Log Page Available event: Indicates that one or more Reservation Notification log pages are available. To clear this event, host software reads the Reservation Notification log page using the Get Log Page command.
- Vendor Specific event: Indicates a vendor specific event. To clear this event, host software reads the indicated vendor specific log page using Get Log Page command.

Modify a portion of section 5.7 as shown below:

The Firmware Activate command is used to verify that a valid firmware image has been downloaded and to commit that revision to a specific firmware slot. The host may select the firmware image to activate on the next controller reset (CC.EN transitions from '1' to '0', a PCI function level reset, and/or other Controller or NVM Subsystem Reset) as part of this command. The currently executing firmware revision may be determined from the Firmware Revision field of the Identify Controller data structure in Figure 82 or as indicated in the Firmware Slot Information log page.

Comment [JC1]: Add space

Modify Figure 116 in section 5.14 as shown below:

Figure 116: Security Receive – Command Dword 11

Bit	Description
31:00	**Allocation Length (AL):** The value of this field is specific to the Security Protocol as defined in SPC-4 where INC_512 = 0.

Modify Figure 120 in section 5.15 as shown below:

Figure 120: Security Send – Command Dword 11

Bit	Description
31:00	**Transfer Length (TL):** The value of this field is specific to the Security Protocol as defined in SPC-4 where INC_512 = 0.

Modify Figure 90 in section 5.12.1 as shown below:

Figure 1: Set Features, NVM Command Set Specific – Feature Identifiers

Feature Identifier	O/M	Persistent Across Power States and Reset[1]	Uses Memory Buffer for Attributes	Description
80h	O	Yes	No	Software Progress Marker
81h	O[2]	No	Yes	Host Identifier
82h	O[3]	No	No	Reservation Notification Mask
83h	O[3]	Yes	No	Reservation Persistance
84h – BFh				Reserved

NOTES:
1. This column is only valid if bit 4 in the Optional NVM Command Support field of the Identify Controller Data structure in Figure 82 is cleared to '0'.
2. Mandatory if reservations are supported as indicated in the Identify Controller data structure.
3. Mandatory if reservations are supported by the namespace as indicated by a non-zero value in the Reservation Capabilities (RESCAP) field in the Identify Namespace data structure.

Comment [JC2]: Add space

Disposition log

1/8/2013	Erratum captured.
1/23/2013	Modified security receive allocation length. Modified MSGLP definition. Captured typo in Figure 90.
2/6/2013	Removed PRP/SGL reference in Figure 84 (MC) & reverted Security Send/Receive
2/7/2013	Removed MSGLP – push to ECN 003
5/8/2013	Erratum ratified.