Proposed Draft

Serial ATA International Organization

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Title : Section 13 Corrections

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Document History

Version	Date	Comments
0	5/2/2007	Initial release.
1	5/7/2007	Integrated proposed new location of HIPM related material which is in turn being deleted from the SET FEATURES section.
2	5/14/2006	Moved HIPM material to suggested link layer state machine area rather than IDENTIFY DEVICE. Added ECN number.

1 Introduction

1.1 Problem Statement

This ECN addresses several areas of incorrect or irrelevant material within specific areas of the specification.

Within section 13.2.2, there is an incorrect reference to a bit range for Word 76.

Within section 13.2.4.3 for the section outlining the SET FEATURES definition for enable/disable of device initiated power management requests, there is mention of host based requirements related to requests which are originally initiated by the host. This material is not relative to the specific section.

1.2 Solution Summary

Resolve the incorrect bit range within section 13.2.2 (IDENTIFY PACKET DEVICE, word 76).

Move the host related material from section 13.2.4.3 to more appropriate locations regarding host initiated power management requests.

1.3 Background (optional)

N/A

2 Technical Specification Changes

2.1.1 Link Idle State Diagram

[**Editor's Note:** The changes marked in red (and underlined/strikethrough) will be incorporated in section 9.6.2]

Table 67 – State Diagram Link Idle

L1: L_IDLE[4]	Transmit $SYNC_P$.	
1. Transport layer requests frame transmission and PHYRDY[2].	→	HL_SendChkRdy or DL_SendChkRdy[1]
2. Transport layer requests transition to Partial and PHYRDY[2,5].	→	L_TPMPartial
3. Transport layer requests transition to Slumber and PHYRDY[2,5].	→	L_TPMSlumber
4. X_RDY_P received from Phy.	→	L_RcvWaitFifo
5. Phy layer forwards ($PMREQ\_P_P$ or $PMREQ\_S_P$) and power modes are enabled and acceptable.	→	L_PMOff
6. Phy layer forwards ($PMREQ\_P_P$ or $PMREQ\_S_P$) and power modes are disabled or are unacceptable.	→	L_PMDeny
7. Phy layer forwards AnyDword other than (X_RDY_P or $PMREQ\_P_P$ or $PMREQ\_S_P$) and no transmit request from Transport layer[2,3].	→	L_IDLE
8. PHYRDYn	→	L_NoCommErr

NOTES:
1. The host Link layer makes a transition to the HL_SendChkRdy state; the device Link layer makes a transition to the DL_SendChkRdy state.
2. This transition is taken even if errors such as 10b decoding errors are detected.
3. This statement also ignores any unrecognized sequences or commands not defined in this specification.
4. Upon entry to this state from the LS3:L_SendAlign state or the LPM8:L_WakeUp2 state, use of $CONT_P$ is not allowed until either a minimum of 10 non-$ALIGN_P$ primitives have been transmitted or until receipt of a primitive other than $SYNC_P$ or $ALIGN_P$ has been detected.
5. Hosts shall not attempt initiating an interface power state transition between an issued reset and the receipt of the device reset signature. Hosts should not attempt initiating an interface power management request without first verifying the device has such capabilities as determined by the information in the device's IDENTIFY DEVICE (or IDENTIFY PACKET DEVICE) data structure.

2.2 IDENTIFY PACKET DEVICE

[**Editor's Note:** The changes marked in red (and underlined/strikethrough) will be incorporated in section 13.2.2]

Table 1 – IDENTIFY PACKET DEVICE information

Word	O/M	F/V	
0-48			Set as indicated in ATA/ATAPI-6

Word	O/M	F/V		
49	M		Capabilities	
		F	15-12	Set as indicated in ATA/ATAPI-6
		F	11	1=IORDY supported 0=IORDY may be supported
		F	10	1=IORDY may be disabled
		R	9	Shall be set to one.
		R	8	1=DMA supported
		X	7-0	Vendor specific
50-52			Set as indicated in ATA/ATAPI-6	
53	M		Field validity	
		R	15-3	Reserved
		F	2	1=the fields reported in word 88 are valid 0=the fields reported in word 88 are not valid
		F	1	1=the fields reported in words (70:64) are valid 0=the fields reported in words (70:64) are not valid
		F	0	Obsolete
54-62			Set as indicated in ATA/ATAPI-6	
63	M		Multiword DMA transfer	
			15-3	Set as indicated in ATA/ATAPI-6
		F	2	1= Multiword DMA mode 2 and below are supported
		F	1	1= Multiword DMA mode 1 and below are supported
		F	0	1= Multiword DMA mode 0 is supported
64	M		PIO transfer modes supported	
			15-2	Set as indicated in ATA/ATAPI-6
		F	1-0	PIO modes 3 and 4 supported
65	M		Minimum Multiword DMA transfer cycle time per word	
		F	15-0	Cycle time in nanoseconds
66	M		Manufacturer's recommended Multiword DMA transfer cycle time	
		F	15-0	Cycle time in nanoseconds
67	M		Minimum PIO transfer cycle time without flow control	
		F	15-0	Cycle time in nanoseconds
68	M		Minimum PIO transfer cycle time with IORDY flow control	
		F	15-0	Cycle time in nanoseconds
69-75			Set as indicated in ATA/ATAPI-6	
76	O		Serial ATA capabilities	
		F	15-11	Reserved
		F	10	Supports Phy event counters
		F	9	Supports receipt of host-initiated interface power management requests
		F	8~~-4~~	Reserved
		F	7-3	Reserved for future Serial ATA signaling speed grades
		F	2	1 = Supports Serial ATA Gen2 signaling speed (3.0 Gbps)
		F	1	1 = Supports Serial ATA Gen1 signaling speed (1.5 Gbps)
		F	0	Shall be cleared to zero

2.3 Enable/Disable Device-Initiated Interface Power State Transitions

[**Editor's Note:** The changes marked in red (and underlined/strikethrough) will be incorporated in section 13.2.4.3]

A Sector Count value of 03h is used by the host to enable or disable device initiation of interface power state transitions. By default, the device is not permitted to attempt interface power state transitions by issuing PMREQ_P_P or PMREQ_S_P to the host. The host may enable device initiation of such interface power state transitions for such cases where it may be desirable for the device to attempt initiating such transitions. The enable/disable state for device initiated power management shall persist across software reset. The enable/disable state shall be reset to its default disabled state upon COMRESET.

If device initiated interface power management is enabled, the device shall not attempt to initiate an interface power state transition between reset and the delivery of the device reset signature. ~~Hosts shall not attempt initiating an interface power state transition between an issued reset and the receipt of the device reset signature. Hosts should not attempt initiating an interface power management request without first verifying the device has such capabilities as determined by the information in the device's IDENTIFY (PACKET) DEVICE data structure.~~