Proposed
Draft

Serial ATA
International Organization

Serial ATA Revision 3.2 ECN # 75
Title : Identify Device data log and Word correction

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Document History

Version	Date	Comments
0	November 8, 2013	Initial release.
1	November 11, 2013	Added REBUILD ASSIST SUPPORTED bit and HYBRID INFORMATION SUPPORT bit to Table 118 – Serial ATA (page 08h).
2	November 18, 2013	Fixed broken cross references. Changed D174 to ECN 075 for Member review.

1   Introduction

1.1   Problem Statement

In section 13.7.9 Identify Device data log (30h) the values for IDENTIFY DEVICE data Words 76 and 77 are out of sync.

Both REBUILD ASSIST SUPPORTED bit and HYBRID INFORMATION SUPPORT bit were omitted from Table 118 – Serial ATA (page 08h).

1.2   Solution Summary

Changed the values of IDENTIFY DEVICE data Word 77 to 76 for sections 13.7.9.2.1 to 13.7.9.2.11.

Changed the values of IDENTIFY DEVICE data Word 78 to 77 for sections 13.7.9.2.12 to 13.7.9.2.14.

Add REBUILD ASSIST SUPPORTED bit and HYBRID INFORMATION SUPPORT bit to Table 118 – Serial ATA (page 08h).

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.]

Table 118 – Serial ATA (page 08h)

Offset	Type	Contents
…	…	…
8:15	Qword	SATA Capabilities

Bit	Meaning
63	Shall be set to one.
62:30~~29~~	Reserved
29	REBUILD ASSIST SUPPORTED (see 13.7.9.2.26)
28	DIPM SSP PRESERVATION SUPPORTED (see 13.7.9.2.25)
27	~~Reserved~~HYBRID INFORMATION SUPPORTED (see 13.7.9.24)
26	DEVSLEEP TO REDUCEDPWRSTATE CAPABILITY SUPPORTED (see 13.7.9.2.23)
25	DEVICE SLEEP SUPPORTED (see 13.7.9.2.22)
24	NCQ AUTOSENSE SUPPORTED (see 13.7.9.2.21)
23	SOFTWARE SETTINGS PRESERVATION SUPPORTED (see 13.7.9.2.20)
22	HARDWARE FEATURE CONTROL SUPPORTED (see 13.7.9.2.19)
21	IN-ORDER DATA DELIVERY SUPPORTED (see 13.7.9.2.18)
20	DEVICE INITIATED POWER MANAGEMENT SUPPORTED (see 13.7.9.2.17)
19	DMA SETUP FIS AUTO-ACTIVATE SUPPORTED (see 13.7.9.2.16)
18	NON-ZERO BUFFER OFFSETS SUPPORTED (see 13.7.9.2.15)
17	SEND AND RECEIVE QUEUED COMMANDS SUPPORTED (see 13.7.9.2.14)
16	NCQ NON-DATA COMMAND SUPPORTED (see 13.7.9.2.13)
15	NCQ STREAMING SUPPORTED (see 13.7.9.2.12)
14	READ LOG DMA EXT AS EQUIVALENT TO READ LOG EXT SUPPORTED (see 13.7.9.2.11)
13	DEVICE AUTOMATIC PARTIAL TO SLUMBER TRANSITIONS SUPPORTED (see 13.7.9.2.10)
12	HOST AUTOMATIC PARTIAL TO SLUMBER TRANSITIONS SUPPORTED (see 13.7.9.2.9)
11	NCQ PRIORITY INFORMATION SUPPORTED (see 13.7.9.2.8)
10	UNLOAD WHILE NCQ COMMANDS ARE OUTSTANDING SUPPORTED (see 13.7.9.2.7)
9	SATA PHY EVENT COUNTERS LOG SUPPORTED (see 13.7.9.2.6)
8	RECEIPT OF HOST INITIATED POWER MANAGEMENT REQUESTS SUPPORTED (see 13.7.9.2.5)
7	NCQ FEATURE SET SUPPORTED (see 13.7.9.2.4)
6:3	Reserved
2	SATA GEN3 SIGNALING SPEED SUPPORTED (see 13.7.9.2.3)
1	SATA GEN2 SIGNALING SPEED SUPPORTED (see 13.7.9.2.2)
0	SATA GEN1 SIGNALING SPEED SUPPORTED (see 13.7.9.2.1)

1.1.1.1.1 <13.7.9.2.1> SATA GEN1 SIGNALING SPEED SUPPORTED bit

IDENTIFY DEVICE data Word ~~77~~76 bit 1 is a copy of this field.

1.1.1.1.2 <13.7.9.2.2> SATA GEN2 SIGNALING SPEED SUPPORTED bit

IDENTIFY DEVICE data Word ~~77~~76 bit 2 is a copy of this field.

1.1.1.1.3 <13.7.9.2.3> SATA GEN3 SIGNALING SPEED SUPPORTED bit

IDENTIFY DEVICE data Word ~~77~~76 bit 3 is a copy of this field.

1.1.1.1.4 <13.7.9.2.4> NCQ FEATURE SET SUPPORTED bit

IDENTIFY DEVICE data Word ~~77~~76 bit 8 is a copy of this field.

1.1.1.1.5 <13.7.9.2.5> RECEIPT OF HOST INITIATED POWER MANAGEMENT REQUESTS SUPPORTED BIT

IDENTIFY DEVICE data Word ~~77~~76 bit 9 is a copy of this field.

1.1.1.1.6 <13.7.9.2.6> SATA PHY EVENT COUNTERS LOG SUPPORTED BIT

IDENTIFY DEVICE data Word ~~77~~76 bit 10 is a copy of this field.

1.1.1.1.7 <13.7.9.2.7> UNLOAD WHILE NCQ COMMANDS ARE OUTSTANDING SUPPORTED bit

IDENTIFY DEVICE data Word ~~77~~76 bit 11 is a copy of this field.

1.1.1.1.8 <13.7.9.2.8> NCQ PRIORITY INFORMATION SUPPORTED bit

IDENTIFY DEVICE data Word ~~77~~76 bit 12 is a copy of this field.

1.1.1.1.9 <13.7.9.2.9> HOST AUTOMATIC PARTIAL TO SLUMBER TRANSITIONS SUPPORTED bit

IDENTIFY DEVICE data Word ~~77~~76 bit 13 is a copy of this field.

1.1.1.1.10 <13.7.9.2.10> DEVICE AUTOMATIC PARTIAL TO SLUMBER TRANSITIONS SUPPORTED bit

IDENTIFY DEVICE data Word ~~77~~76 bit 14 is a copy of this field.

1.1.1.1.11 <13.7.9.2.11> READ LOG DMA EXT AS EQUIVALENT TO READ LOG EXT SUPPORTED bit

IDENTIFY DEVICE data Word ~~77~~76 bit 15 is a copy of this field.

1.1.1.1.12 <13.7.9.2.12> NCQ STREAMING SUPPORTED bit

IDENTIFY DEVICE data Word ~~78~~77 bit 4 is a copy of this field.

1.1.1.1.13 <13.7.9.2.13> NCQ NON-DATA COMMAND SUPPORTED bit

IDENTIFY DEVICE data Word ~~78~~77 bit 5 is a copy of this field.

1.1.1.1.14 <13.7.9.2.14> SEND AND RECEIVE QUEUED COMMANDS SUPPORTED bit

IDENTIFY DEVICE data Word ~~78~~77 bit 6 is a copy of this field.

1.1.1.1.15 <13.7.9.2.24> HYBRID INFORMATION SUPPORTED bit

If the HYBRID INFORMATION SUPPORTED bit is set to one, then the device supports the hybrid information feature (see 13.20). If the device does not support the hybrid information feature, then the HYBRID INFORMATION SUPPORTED bit shall be cleared to zero.

IDENTIFY DEVICE data Word 78 bit 9 is a copy of this field.

1.1.1.1.16 <13.7.9.2.25> DIPM SSP PRESERVATION SUPPORTED bit

If the DIPM SSP PRESERVATION SUPPORTED bit is set to one, then the device supports persistence of the Device Initiated Interface Power Management enable/disable setting via Software Settings Preservation.

IDENTIFY DEVICE data Word 78 bit 10 is a copy of this field.

1.1.1.1.17 <13.7.9.2.26> REBUILD ASSIST SUPPORTED bit

If the REBUILD ASSIST SUPPORTED bit is set to one, then the device supports the Rebuild Assist feature (see 13.21). This bit shall only be set to one if the device supports NCQ as shown in bit 8 of Word 76. The host may determine if the Rebuild Assist feature is enabled or disabled by reading the Rebuild Assist log or by reading IDENTIFY DEVICE data Word 79 bit 11.

IDENTIFY DEVICE data Word 78 bit 11 is a copy of this field.

Table 100 – IDENTIFY DEVICE information (part 2 of 4)

Word	O/M	F/V	
76	O		Serial ATA capabilities
		F	15 Supports READ LOG DMA EXT as equivalent to READ LOG EXT
		F	14 Supports Device Automatic Partial to Slumber transitions
		F	13 Supports Host Automatic Partial to Slumber transitions
		F	12 Supports Native Command Queuing priority information
		F	11 Supports Unload while NCQ commands outstanding
		F	10 Supports Phy event counters
		F	9 Supports receipt of host-initiated interface power management requests
		F	8 Supports Native Command Queuing
		R	7..4 Reserved for future Serial ATA signaling speed grades
		F	3 Supports Serial ATA Gen3 signaling speed (6.0 Gbps)
		F	2 Supports Serial ATA Gen2 signaling speed (3.0 Gbps)
		F	1 Supports Serial ATA Gen1 signaling speed (1.5 Gbps)
		F	0 Shall be cleared to zero
77	O		Serial ATA Additional capabilities
		R	15..8 Reserved
		F	7 DevSleep_to_ReducedPwrState
		F	6 Supports RECEIVE FPDMA QUEUED and SEND FPDMA QUEUED commands
		F	5 Supports NCQ NON-DATA Command
		F	4 Supports NCQ Streaming
		V	3..1 Coded value indicating current negotiated Serial ATA signal speed
		F	0 Shall be cleared to zero

Key:
M = Support of the Word is mandatory.
O = Support of the Word is optional.
F = the content of the bit, field, or Word is fixed and does not change. For removable media devices, these values may change if media is removed or changed.
V = the contents of the bit, field, or Word is variable and may change depending on the state of the device or the commands processed by the device.
R = the content of the bit, field, or Word is reserved and shall be zero.

Table 100 – IDENTIFY DEVICE information (part 3 of 4)

Word	O/M	F/V	
78	O		Serial ATA features supported
		R	15..12 Reserved
		F	11 Supports Rebuild Assist
		F	10 Supports Device Initiated Interface Power Management Software Settings Preservation
		F	9 Supports Hybrid Information
		F	8 Supports Device Sleep
		F	7 Supports NCQ Autosense
		F	6 Supports software settings preservation
		F	5 Supports Hardware Feature Control
		F	4 Supports in-order data delivery
		F	3 Supports initiating interface power management
		F	2 Supports DMA Setup Auto-Activate optimization
		F	1 Supports non-zero buffer offsets in DMA Setup FIS
		F	0 Shall be cleared to zero

Table 118 – Serial ATA (page 08h)

(part 1 of 3)

Offset	Type	Contents		
0..7	Qword	Serial ATA page information header.		
			Bit	Meaning
			63	Shall be set to one.
			62:24	Reserved
			32:16	Page number. Shall be set to 08h.
			15:0	Revision number. Shall be set to 0001h.
8:15	Qword	SATA Capabilities		
			Bit	Meaning
			63	Shall be set to one.
			62:29	Reserved
			28	DIPM SSP PRESERVATION SUPPORTED (see 13.7.9.2.25)
			27	Reserved
			26	DEVSLEEP TO REDUCEDPWRSTATE CAPABILITY SUPPORTED (see 13.7.9.2.23)
			25	DEVICE SLEEP SUPPORTED (see 13.7.9.2.22)
			24	NCQ AUTOSENSE SUPPORTED (see 13.7.9.2.21)
			23	SOFTWARE SETTINGS PRESERVATION SUPPORTED (see 13.7.9.2.20)
			22	HARDWARE FEATURE CONTROL SUPPORTED (see 13.7.0.2.19)
			21	IN-ORDER DATA DELIVERY SUPPORTED (see 13.7.9.2.18)
			20	DEVICE INITIATED POWER MANAGEMENT SUPPORTED (see 13.7.9.2.17)
			19	DMA SETUP FIS AUTO-ACTIVATE SUPPORTED (see 13.7.9.2.16)
			18	NON-ZERO BUFFER OFFSETS SUPPORTED (see 13.7.9.2.15)
			17	SEND AND RECEIVE QUEUED COMMANDS SUPPORTED (see 13.7.9.2.14)
			16	NCQ NON-DATA COMMAND SUPPORTED (see 13.7.9.2.13)
			15	NCQ STREAMING SUPPORTED (see 13.7.9.2.12)
			14	READ LOG DMA EXT AS EQUIVALENT TO READ LOG EXT SUPPORTED (see 13.7.9.2.11)
			13	DEVICE AUTOMATIC PARTIAL TO SLUMBER TRANSITIONS SUPPORTED (see 13.7.9.2.10)
			12	HOST AUTOMATIC PARTIAL TO SLUMBER TRANSITIONS SUPPORTED (see 13.7.9.2.9)
			11	NCQ PRIORITY INFORMATION SUPPORTED (see 13.7.9.2.8)
			10	UNLOAD WHILE NCQ COMMANDS ARE OUTSTANDING SUPPORTED (see 13.7.9.2.7)
			9	SATA PHY EVENT COUNTERS LOG SUPPORTED (see 13.7.9.2.6)
			8	RECEIPT OF HOST INITIATED POWER MANAGEMENT REQUESTS SUPPORTED (see 13.7.9.2.5)
			7	NCQ FEATURE SET SUPPORTED (see 13.7.9.2.4)
			6:3	Reserved
			2	SATA GEN3 SIGNALING SPEED SUPPORTED (see 13.7.9.2.3)
			1	SATA GEN2 SIGNALING SPEED SUPPORTED (see 13.7.9.2.2)
			0	SATA GEN1 SIGNALING SPEED SUPPORTED (see 13.7.9.2.1)