

**Proposed
Draft****Serial ATA
International Organization****Version 2
12/15/2008****ECN_034_20081215_v02****Title: Corrections to Serial ATA Technical
Proposal # 005**

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Document History

[illegible]

Introduction

This is a proposal to select a series of bits in the IDENTIFY DEVICE return data to indicate the current negotiated SATA Phy speed (Gen1, Gen2, Gen3, etc...). I recognize that this information is available through SStatus but Lenovo believes that this definition is still necessary for the following reasons.

1. There is an established precedence going back to pATA to include both the supported and currently selected signaling speeds in IDENTIFY DEVICE.
2. Much software (primarily test software) is already written to use IDENTIFY DEVICE return data to check for current interface speed. Because of this, it is trivial to adapt current software to check for newly defined ID bits to indicate currently negotiated SATA speed.
3. Depending on the Host Controller the method of accessing or even the availability of the SStatus register is inconsistent. Any software to check the SStatus register would have to be host controller "aware". This would require significant programming resources and is impractical.

1 Technical Specification Changes

[Editor's Note: The changes marked in **red** (and underlined/strikethrough) will be incorporated in sections 1.2 and 1.3 of the Technical Proposal # 005

Integration Team: Please make change to “speed” from “rate”, and to “device” from “drive”.]

1.1 Section 13.2.1 (**IDENTIFY DEVICE**) Table 73

[Editor's Note: The changes marked in **blue** (and underlined/strikethrough) will be incorporated in section 13.2.1]

Word	O/M	F/V	Description
77	O		Reserved for future Serial ATA definition <u>Serial ATA Indicators</u>
		F	<u>15-4 Reserved</u>
		V	<u>3-1 Coded value indicating current negotiated Serial ATA signal speed</u>
		F	<u>0 Shall be cleared to zero</u>

Deleted: Identify Device

1.2 13.2.1.17 Word 77: Reserved

[Editor's Note: The changes marked in **blue** (and underlined/strikethrough) will be incorporated in section 13.2.1.17]

13.2.1.17 Word 77: ~~Reserved~~ Serial ATA Indicators **[Comment: Not sure if “Indicators” is the most appropriate title.]**

Word 77 reports optional indicators supported by the device. Support for this word is optional and if not supported, the word shall be zero indicating the device has no support for new Serial ATA indicators.

Deleted: If not 0000h or FFFFh, the device claims compliance with the Serial ATA specification and Supports indication of the current signaling rate in bits 1-3. Bit 0 is reserved and shall be cleared to zero (thus a Serial ATA device has at least one bit cleared in this field and at least one bit set providing clear differentiation). If this field is not 0000h or FFFFh, words 77 through 79 shall be valid. If this field is 0000h or FFFFh the device does not claim compliance with the Serial ATA specification and Words 76 through 79 are not valid and shall be ignored.

Bit 0 shall be cleared to zero

Deleted: 1-3

Deleted: o indicate

Deleted: current

Deleted: that drive is communicating at

Bits 3-1 are a coded value that indicates the Serial ATA Phy speed at which the drive is currently communicating. Table xxx defines these values:

Coded Values			Description
Bit 3	Bit 2	Bit 1	
0	0	1	Gen1 signaling speed <u>(1.5Gbps)</u>
0	1	0	Gen2 signaling speed <u>(3.0Gbps)</u>
0	1	1	Gen3 signaling speed <u>(6.0Gbps)</u>
All Non-Defined Values			Reserved for future Serial ATA signaling <u>speeds</u>

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Table xxx – Coded Values for Negotiated Serial ATA Phy Speed

Note: In the case of system configurations that have more than one Phy link in the data path (e.g., port multiplier), the indicated speed is only relevant for the link between the device Phy and its immediate host Phy. It is possible for each link in the data path to negotiate a different Serial ATA Phy speed.

Bits 15-4 are reserved and shall be cleared to zero.

1.3 Section 13.2.2 (**IDENTIFY PACKET DEVICE**) Table 74

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

Word	O/M	F/V	Description
77	O		Reserved for future Serial ATA definition Serial ATA Indicators
		F	15-4 Reserved
		V	3-1 Coded value indicating current negotiated Serial ATA signal speed
		F	0 Shall be cleared to zero

1.4 13.2.2.14 Word 77: Reserved

[Editor's Note: The changes marked in blue (and underlined/strikethrough) will be incorporated in section 13.2.2.14]

13.2.2.14 Word 77: Reserved [Serial ATA Indicators](#)

[Word 77 reports optional indicators supported by the device. Support for this word is optional and if not supported, the word shall be zero indicating the device has no support for new Serial ATA indicators.](#)

[Bit 0 shall be cleared to zero](#)

[Bits 3-1 are a coded value that indicates the Serial ATA Phy speed at which the drive is currently communicating. Table xxx defines these values.](#)

[Note: In the case of system configurations that have more than one Phy link in the data path \(e.g., port multiplier\), the indicated speed is only relevant for the link between the device Phy and its immediate host Phy. It is possible for each link in the data path to negotiate a different Serial ATA Phy speed.](#)

[Bits 15-4 are reserved and shall be cleared to zero.](#)

Deleted: [If not 0000h or FFFFh, the device claims compliance with the Serial ATA specification and Supports indication of the current signaling rate in bits 1-3. Bit 0 is reserved and shall be cleared to zero \(thus a Serial ATA device has at least one bit cleared in this field and at least one bit set providing clear differentiation\). If this field is not 0000h or FFFFh, words 77 through 79 shall be valid. If this field is 0000h or FFFFh the device does not claim compliance with the Serial ATA specification and Words 76 through 79 are not valid and shall be ignored.](#)¶

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Deleted: [to](#)

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