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**Proposed  
Draft**

# Serial ATA International Organization

Version **1**

November **14**, 2008

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**ECN 033 20081201\_v02**

**Title: Definitions of Terms**

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### Document History

Version	Date	Comments
0	Nov. 7, 2008	Initial release.
1	Nov. 14, 2008	Changed initial release TPB to ECND (ECN) to be able to include changes into the Rev. 3.0 spec; included original definitions
2	Nov. 29, 2008	Added appropriate references in the existing spec (Rev. 2.6)

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## 1 Introduction

There are many places in the Revision 2.6 specification document where terms are defined, or used, inconsistently. This proposal corrects and clarifies definitions of basic terms in a consistent manner. [Editor's Note: the changes shall be included in respective places in the specification document.]

## 2 Definition Changes

### 2.1 Dword

#### 4.1.33 Dword

Replace

A Dword is thirty-two (32) bits of data. A Dword may be represented as 32 bits, as two adjacent words, or as four adjacent bytes. When shown as bits the least significant bit is bit 0 and most significant bit is bit 31. The most significant bit is shown on the left. When shown as words the least significant word (lower) is word 0 and the most significant (upper) word is word 1. When shown as bytes the least significant byte is byte 0 and the most significant byte is byte 3. See Figure 1 for a description of the relationship between bytes, words, and Dwords. Dwords are aligned on four byte boundaries to a zero reference defined by a comma character.

with

A **Dword** is an ordered set of thirty-two (32) bits. The least significant bit is bit 0 and the most significant bit is bit 31.

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### 2.2 Word

#### 4.1.103 word

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A word is sixteen (16) bits of data. A word may be represented as 16 bits or as two adjacent bytes. When shown as bits the least significant bit is bit 0 and most significant bit is bit 15. The most significant bit is shown on the left. When shown as bytes the least significant byte (lower) byte is byte 0 and the most significant byte (upper) byte is byte 1. See Figure 1 for a description of the relationship between bytes, words and Dwords.

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with

A **word** is an ordered set of sixteen (16) bits. The least significant bit is bit 0 and the most significant bit is bit 15.

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### 2.3 Byte

#### 4.1.8 byte

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A byte is 8 bits of data. The least significant bit is bit 0 and the most significant bit is bit 7. The most significant bit is shown on the left. In the encoding process the bits in a byte are referred to as HGFEDCBA, or "A,B,C,D,E,F,G,H" where A corresponds to bit 0 and H corresponds to bit 7.

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Case is significant.with

A **byte** is an ordered set of eight (8) bits. The least significant bit is bit 0 and the most significant bit is bit 7.

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## 2.4 Relationship between Dword, word and byte

### 4.2.7 Byte, word and Dword Relationships

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Figure 1 illustrates the relationship between bytes, words and Dwords.

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The most significant bit in a byte (i.e., bit 7) is shown on the left (see 4.2.7, Figure 1 [Ed: or appropriate section]).

A word may be represented as an ordered set of two (2) bytes. The least significant byte (lower byte) is byte 0 and the most significant byte (upper byte) is byte 1. The most significant byte is shown on the left (see 4.2.7, Figure 1 [Ed: or appropriate section]).

A Dword may be represented as an ordered set of two (2) words. The least significant word (lower word) is word 0 and the most significant word (upper word) is word 1. The most significant word is shown on the left (see 4.2.7, Figure 1 [Ed: or appropriate section]).

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A Dword may be represented as an ordered set of four (4) bytes. The least significant byte is byte 0 and the most significant byte is byte 3. The most significant byte is shown on the left (see 4.2.7, Figure 1 [Ed: or appropriate section]).

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A word may be represented as an ordered set of two (2) bytes. The least significant byte (lower byte) is byte 0 and the most significant byte (upper byte) is byte 1. The most significant byte is shown on the left.¶

## 2.5 Character

### 4.1.9 character

Replace

A character is a representation of a data byte or control code. There are two types of characters: data characters and control characters.

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A **character** is a representation of a byte in the Zxx.y notation (see 9.2.1 [Ed. Section 9.2.1 has to be revised]).

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## 2.6 Data Character

### 4.1.25 data character

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A data character is a combination of a byte value with the control variable equal to D.

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A **data character** is a character in which Z is equal to D (see 9.2.1 [Ed. Section 9.2.1 has to be revised]).

## 2.7 Control Character

### 4.1.21 control character

Replace

A control character is a combination of a byte value with the control variable equal to K.

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A **control character** is a character in which Z is equal to K (see 9.2.1 [Ed. Section 9.2.1 has to be revised]).

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## 2.8 Primitive

### 4.1.81 primitive

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A primitive is a single Dword of information that consists of a control character in byte 0 followed by three additional data characters in bytes 1-3. [Ed. Note: Integration team, please check general usage

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A **primitive** is a special Dword used by the Link layer for the transport control. Byte 0 of each primitive is a control character.

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