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**Serial ATA
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Title : Correction of references to tagged command queuing

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Document History

Version	Date	Comments
0	6/10/2016	Initial release.
1	6/14/2016	Incorporation of comments from 6/13 Digital WG meeting
2	6/27/2016	Incorporation of comments from 6/27 Digital WG meeting
3	7/18/2016	Changed ZERO EXT description of handling of TRIM/FEATURE

1 Introduction

The TCQ feature set was removed in ACS-2, so any references to it must be changed to reference ATA8-ACS. [There is also no longer a SECTOR COUNT field in ACS-4 commands, so the references to it must be changed.](#)

2 Technical Specification Changes

3.2 Approved references

The following approved ANSI standards, approved international and regional standards (e.g., ISO, IEC, CEN/CENELEC, and ITUT), may be obtained from the international and regional organizations who control them.

AT Attachment with Packet Interface – 5 (ATA/ATAPI-5) [ANSI INCITS 340-2000]

AT Attachment with Packet Interface – 6 (ATA/ATAPI-6) [ANSI INCITS 361-2002]

AT Attachment with Packet Interface – 7 (ATA/ATAPI-7) [ANSI INCITS 397-2005]

[AT Attachment - 8 ATA/ATAPI Command Set \(ACS\) \[ANSI INCITS 452-2008\]](#)

ATA/ATAPI Command Set – 3 (ACS-3) [ANSI INCITS 522-2014]

13.6.4.1 READ FPDMA QUEUED command definition

...(the new definitions should go into the list in the correct field order)

<u>SECTOR COUNT</u>	<u>The SECTOR COUNT field is set to the number of logical sectors to be transferred. A value of 0000h indicates that 65 536 logical sectors are to be transferred</u>
<u>LBA</u>	<u>The LBA field is set to the Logical Block Address of the first logical sector to be transferred</u>

~~All other registers have contents consistent with the READ DMA QUEUED EXT command defined in the ACS-4 standard, including the SECTOR COUNT field (15:0) convention where a value of zero specifies that 65 536 sectors are to be transferred.~~

13.6.5.1 WRITE FPDMA QUEUED command definition

.....(the new definitions should go into the list in the correct field order)

<u>SECTOR COUNT</u>	<u>The SECTOR COUNT field is set to the number of logical sectors to be transferred. A value of 0000h indicates that 65 536 logical sectors are to be transferred</u>
<u>LBA</u>	<u>The LBA field is set to the Logical Block Address of the first logical sector to be transferred</u>

~~All other registers have contents consistent with the WRITE DMA QUEUED EXT command defined in the ACS-4 standard, including the SECTOR COUNT field (15:0) convention where a value of zero specifies that 65 536 sectors are to be transferred.~~

13.6.6.9.2 Inputs (ZERO EXT)

Field	7	6	5	4	3	2	1	0
FEATURES(7:0)	Reserved				6h			
FEATURES(15:8)	Contents of the ZERO EXT command SECTOR COUNT(7:0)							
COUNT(7:0)	TAG(4:0)				Reserved			
COUNT(15:8)	Contents of the ZERO EXT command SECTOR COUNT(15:8)							
LBA(7:0)	Contents of the ZERO EXT command LBA(7:0)							
LBA(15:8)	Contents of the ZERO EXT command LBA(15:8)							
LBA(23:16)	Contents of the ZERO EXT command LBA(23:16)							
LBA(31:24)	Contents of the ZERO EXT command LBA(31:24)							
LBA(39:32)	Contents of the ZERO EXT command LBA(39:32)							
LBA(47:40)	Contents of the ZERO EXT command LBA(47:40)							
AUXILIARY(7:0)	Reserved							TRIM
AUXILIARY(7:0)	Contents of the ZERO EXT command FEATURE(7:0)							
AUXILIARY(15:8)	Contents of the ZERO EXT command FEATURE(15:8) Reserved							
AUXILIARY(23:16)	Reserved							
AUXILIARY(31:24)	Reserved							

See ACS-4 for the definitions of the [ZERO EXT command](#). ~~SECTOR COUNT field, the LBA field (47:0) and the TRIM bit in the ZERO EXT subcommand.~~

13.6.6.10.2 Inputs (ZAC MANAGEMENT OUT)

The ZAC MANAGEMENT OUT subcommand functionality and behavior is defined in ACS-4

Field	7	6	5	4	3	2	1	0
FEATURES(7:0)	Reserved				7h			
FEATURES(15:8)	Contents of ZAC MANAGEMENT OUT command SECTOR COUNT(7:0)							
LBA(7:0)	Contents of ZAC MANAGEMENT OUT command LBA(7:0)							
LBA(15:8)	Contents of ZAC MANAGEMENT OUT command LBA(15:8)							
LBA(23:16)	Contents of ZAC MANAGEMENT OUT command LBA(23:16)							
LBA(31:24)	Contents of ZAC MANAGEMENT OUT command LBA(31:24)							
LBA(39:32)	Contents of ZAC MANAGEMENT OUT command LBA(39:32)							
LBA(47:40)	Contents of ZAC MANAGEMENT OUT command LBA(47:40)							
AUXILIARY(7:0)	Contents of ZAC MANAGEMENT OUT command FEATURES(7:0)							
AUXILIARY(15:8)	Contents of ZAC MANAGEMENT OUT command FEATURES(15:8)							
AUXILIARY(23:16)	Reserved							
AUXILIARY(31:24)	Reserved							

See ZAC for the definitions of the [ZAC MANAGEMENT OUT command](#). ~~SECTOR COUNT field, the LBA field (47:0) and the FEATURES field (15:0).~~

13.6.7.7 ZAC MANAGEMENT IN subcommand (02h)

13.6.7.7.1 ZAC MANAGEMENT IN subcommand overview

The ZAC MANAGEMENT IN subcommand functionality and behavior is defined in ACS-4.

13.6.7.7.2 Inputs

The format of the command is defined in Figure 375.

Field	7	6	5	4	3	2	1	0
FEATURES(7:0)	Contents of ZAC MANAGEMENT IN command SECTOR COUNT(7:0)							
FEATURES(15:8)	Contents of ZAC MANAGEMENT IN command SECTOR COUNT(15:8)							
LBA(7:0)	Contents of ZAC MANAGEMENT IN command LBA(7:0)							
LBA(15:8)	Contents of ZAC MANAGEMENT IN command LBA(15:8)							
LBA(23:16)	Contents of ZAC MANAGEMENT IN command LBA(23:16)							
LBA(31:24)	Contents of ZAC MANAGEMENT IN command LBA(31:24)							
LBA(39:32)	Contents of ZAC MANAGEMENT IN command LBA(39:32)							
LBA(47:40)	Contents of ZAC MANAGEMENT IN command LBA(47:40)							
AUXILIARY(7:0)	Contents of ZAC MANAGEMENT IN command FEATURES(7:0)							
AUXILIARY(15:8)	Contents of ZAC MANAGEMENT IN command FEATURES(15:8)							
AUXILIARY(23:16)	Reserved							
AUXILIARY(31:24)	Reserved							

Figure 375 – ZAC MANAGEMENT IN subcommand = 02h

See ZAC for the definitions of the [ZAC MANAGEMENT IN command](#). ~~SECTOR COUNT field (15:0), the LBA field (47:0), and the FEATURE field (15:8).~~

13.6.8.9 ZAC MANAGEMENT OUT subcommand (03h)

13.6.8.9.1 ZAC MANAGEMENT OUT subcommand definition

The ZAC MANAGEMENT OUT subcommand functionality and behavior is defined in ACS-4.

13.6.8.9.2 Inputs

The format of the command is defined in Figure 384.

Field	7	6	5	4	3	2	1	0
FEATURES(7:0)	Contents of ZAC MANAGEMENT OUT command SECTOR COUNT(7:0)							
FEATURES(15:8)	Contents of ZAC MANAGEMENT OUT command SECTOR COUNT(15:8)							
LBA(7:0)	Contents of ZAC MANAGEMENT OUT command LBA(7:0)							
LBA(15:8)	Contents of ZAC MANAGEMENT OUT command LBA(15:8)							
LBA(23:16)	Contents of ZAC MANAGEMENT OUT command LBA(23:16)							
LBA(31:24)	Contents of ZAC MANAGEMENT OUT command LBA(31:24)							
LBA(39:32)	Contents of ZAC MANAGEMENT OUT command LBA(39:32)							
LBA(47:40)	Contents of ZAC MANAGEMENT OUT command LBA(47:40)							
AUXILIARY(7:0)	Contents of ZAC MANAGEMENT OUT command FEATURES(7:0)							
AUXILIARY(15:8)	Contents of ZAC MANAGEMENT OUT command FEATURES(15:8)							
AUXILIARY(23:16)	Reserved							
AUXILIARY(31:24)	Reserved							

Figure 384 – ZAC MANAGEMENT OUT subcommand = 03h

See ZAC for the definitions of the [ZAC MANAGEMENT OUT command](#). ~~SECTOR COUNT field (15:0), the LBA field (47:0), and the FEATURES field (15:0).~~

13.7.4 Queued Error log (10h)

...
 BYTE1..13 A copy of bytes 1..13 of the Register Device to Host FIS is embedded in the data structure. ~~The fields correspond to the Shadow Register Block Registers and are encoded with error information consistent with the READ DMA QUEUED EXT or WRITE DMA QUEUED EXT command defined in the ACS-4 standard.~~