

## T10/05-239r1 SAT - Caching mode page

To: T10 Technical Committee  
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Date: July 1, 2005  
Subject: T10/05-239r1 SAT - Caching mode page

### Revision History

Revision 0 (June 14, 2005) first revision

Revision 1 (July 1, 2005) second revision

Changes as follows: (**Proposal approved** "as revised" per June 20, 2005 SAT W.G.)

- 1) All mode pages are to have "U" (for unspecified field) for "PS" bit.
- 2) Changed all instances of "a value of 1b is not supported" to "a value of 1b is not supported in this standard."
- 3) Changed all instances of "any other value is not supported" to "any value is not supported in this standard."
- 4) PAGE CODE field – change to "(see SBC -2)".
- 5) PAGE LENGTH field – change to "(see SBC-2)".
- 6) Removed "strikeouts" as requested by a W.G. member.
- 7) Changed bulletized formats to "a) and b)" as requested by several.

### Related Documents

(T10) sat-r04 – SCSI to ATA Translation (SAT), Revision 4

(T10) sbc-2r16 – SCSI Block Commands - 2, Revision 16

(T13) ata7v1r4b – AT Attachment with Packet Interface -7 Volume1, Revision 4b

### Overview

1. The Caching mode page is especially critical for enabling/disabling write cache on targets. Most SCSI implementations and many popular operating systems manipulate caching (write caching) to comply with established application client requirements. Particular routines may require write caching to be enabled, whereas, other routines may require it to be disabled.
2. Complexity of the emulation is estimated to be "medium-level".

### Suggested Changes

#### 10.1.5 Caching mode page

The Caching mode page (08h) defines parameters that affect the behavior of the device cache. (See SBC-2.) Table 2 shows the translation of fields in the Caching mode page.

**Table 2 — Caching mode page fields**

Field	SATType	Description or reference
PS	U	
PAGE CODE	I	(See SBC-2)
PAGE LENGTH	I	(See SBC-2)

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IC	E	Set to a value of 0b. A value of 1b is not supported in this standard.
ABPF	E	Set to a value of 0b. A value of 1b is not supported in this standard.
CAP	E	Set to a value of 0b. A value of 1b is not supported in this standard.
DISC	E	Set to a value of 0b. A value of 1b is not supported in this standard.
SIZE	E	Set to a value of 0b. A value of 1b is not supported in this standard.
WCE	E	<p>1) WCE value returned by the MODE SENSE command: The SATL shall determine if the non-packet device write cache is enabled or disabled from the ATA IDENTIFY DEVICE data word 85, bit 5. If the write cache is enabled the SATL shall return a value of 1b for the WCE bit. If the write cache is disabled the SATL shall return a value of 0b for the WCE bit.</p> <p>2) WCE value controlled by the MODE SELECT command:</p> <ul style="list-style-type: none"> <li>a) If WCE is set to 0b, the SATL shall disable the non-packet device write cache by issuing an ATA SET FEATURES – Disable write cache command (EFh with Feature register value of 82h).</li> <li>b) If WCE is set to 1b, the SATL shall enable the non-packet device write cache by issuing an ATA SET FEATURES – Enable write cache command (EFh with Feature register value of 02h).</li> </ul>
MF	E	Set to a value of 0b. A value of 1b is not supported in this standard.
RCD	E	Set to a value of 0b. A value of 1b is not supported in this standard.
DEMAND READ RETENTION PRIORITY	E	Set to a value of 0h. Any other value is not supported in this standard.
WRITE RETENTION PRIORITY	E	Set to a value of 0h. Any other value is not supported in this standard.
DISABLE PRE-FETCH TRANSFER LENGTH	E	Set to a value of 0h. Any other value is not supported in this standard.
MINIMUM PRE-FETCH	E	Set to a value of 0h. Any other value is not supported in this standard.
MAXIMUM PRE-FETCH	E	Set to a value of 0h. Any other value is not supported in this standard.
MAXIMUM PRE-FETCH CEILING	E	Set to a value of 0h. Any other value is not supported in this standard.
FSW	E	Set to a value of 0b. A value of 1b is not supported in this standard.
LBCSS	E	Set to a value of 0b. A value of 1b is not supported in this standard.
DRA	E	<p>1) DRA value returned by the MODE SENSE command: The SATL shall determine if the non-packet device look-ahead is enabled or disabled from the ATA IDENTIFY DEVICE data word 85, bit 6. If the look-ahead is enabled the SATL shall return a value of 0b for the DRA bit. If the look-ahead is disabled the SATL shall return a value of 1b for the DRA bit.</p> <p>2) DRA value controlled by the MODE SELECT command:</p> <ul style="list-style-type: none"> <li>a) If DRA is set to 0b, the SATL shall enable the non-packet device read look-ahead feature by issuing an ATA SET FEATURES – Enable read look-ahead feature command (EFh with Feature register value of AAh).</li> <li>b) If DRA is set to 1b, the SATL shall disable the non-packet device read look-ahead feature by issuing an ATA SET FEATURES – Disable read look-ahead feature command (EFh with Feature register value of 55h).</li> </ul>
NV_DIS	E	Set to a value of 0b. A value of 1b is not supported in this standard.
NUMBER OF CACHE	E	Set to a value of 0h. Any other value is not supported in this standard.

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SEGMENTS		
CACHE SEGMENT SIZE	E	Set to a value of 0h. Any other value is not supported in this standard.

Bit or field values that are not supported shall cause the SATL to return a CHECK CONDITION status with sense key set to ILLEGAL REQUEST and additional sense code set to INVALID FIELD IN PARAMETER LIST.