

To: T10 Technical Committee  
From: Wayne Bellamy (wayne.bellamy@hp.com), Hewlett Packard  
Date: July 7, 2005  
Subject: T10/05-238r1 SAT - Informational Exceptions Control mode page

### **Revision History**

Revision 0 (June 14, 2005) first revision

Revision 1 (July 01, 2005) second revision

Changes as follows: (per June 20, 2005 SAT W.G.)

- 1) Change "PS" bit to "U".
- 2) Remove all strikeouts per W.G. member.
- 3) Change bulletized formats to "a) and b)" format.
- 4) Change SPF bit to "Shall be set to a value of 0b. (See SPC-3)"
- 5) PAGE LENGTH field to "(See SPC-3)"
- 6) Change PERF bit to "Shall be set to a value of 0b. (See SPC-3)"
- 7) Change EBF bit to "U" and delete all description detail. (Note: Some discussion about "U" for MODE SENSE and "E" for MODE SELECT. Additional discussion about adding a "changeable" column to the table. I'll try to add another copy of the same table with the additional column for review.)
- 8) Change EWASC bit to "U" and delete all description detail.
- 9) Change TEST bit to "Shall be set to a value of 0b. A value of 1b is not supported by this standard."
- 10) LOGERR (not certain what was decided here). I'll change LOGERR to "U" for now since there was mention of mapping this bit to "ATA SMART ATTRIBUTE AUTOSAVE" by someone.
- 11) MRIE
- 12) Change INTERVAL TIMER and REPORT COUNT fields to "U" and strike description field.

### **Related Documents**

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

(T10) spc-3r22 – SCSI Primary Commands - 3, Revision 22

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

### **Overview**

1. This proposal is closely tied to proposal 05-142r2 for its acceptance.
2. Most SCSI implementations and many popular operating systems have implemented the use of SMART. As such, this mode page needs to be implemented.
3. Complexity of the emulation of a "full-featured" SMART implementation can be extremely complicated. It is the intent of this proposal to address a very simple implementation of SMART (at this time), with the understanding that an STP pass-thru method could be utilized by an application client to extract extensive SMART log information.

### **Suggested Changes**

**10.1.6 Informational Exceptions Control mode page**

This page defines the methods used by the device server to control the reporting and the operations of specific informational exception conditions. This page applies to informational exceptions that report an additional sense code of FAILURE PREDICTION THRESHOLD EXCEEDED or WARNING to the application client. (See SPC-3)

Table 2 shows the translation of fields in the Informational Exceptions Control mode page.

**[Note to the Editor and W.G.: The following table is duplicated (2 tables) with a column added for “changeable”. One table should be chosen for use and the other deleted.]**

**Table 2 — Informational Exceptions Control mode page fields**

Field	SATType	Description or reference
PS	U	
SPF	I	(See SPC-3)
PAGE CODE	E	Set to a value of 1Ch. This field value is specific to the Informational Exceptions Control mode page. The SATL shall determine if the ATA SMART feature set is supported from the ATA IDENTIFY DEVICE data word 82, bit 0. If the ATA SMART feature set is not supported the SATL shall return a CHECK CONDITION status with SENSE KEY set to ILLEGAL REQUEST and ADDITIONAL SENSE CODE set to INVALID FIELD IN CDB.
PAGE LENGTH	I	(See SPC-3)
PERF	E	Shall be set to a value of 0b. (See SPC-3)
EBF	U	
EWASC	U	
DEXCPT	E	1) DEXCPT value returned by the MODE SENSE command: The SATL shall determine if the ATA SMART feature set is enabled or disabled from the non-packet device ATA IDENTIFY DEVICE data word 85, bit 0. If the ATA SMART feature set is disabled the SATL shall return a value of 1b for the DEXCPT bit. If the ATA SMART feature set is enabled the SATL shall return a value of 0b for the DEXCPT bit.  2) DEXCPT value controlled by the MODE SELECT command: a) If DEXCPT is set to 0b, the SATL shall enable informational exceptions reporting by issuing an ATA SMART ENABLE OPERATIONS command (B0h with Feature register value of D8h) to the non-packet device. b) If DEXCPT is set to 1b, the SATL shall disable informational exceptions reporting by issuing an ATA SMART DISABLE OPERATIONS command (B0h with Feature register value of D9h) to the non-packet device.
TEST	E	Shall be set to a value of 0b. A value of 1b is not supported by this standard.
LOGERR	U	
MRIE	E/U	Shall be set to a value of 6h. Any other value is unspecified by this standard.
INTERVAL TIMER	U	

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REPORT COUNT	U	

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.

**[Note to the Editor and W.G.: The following table is a duplicate of the previous table with a column added for “changeable”. One table should be chosen for use and the other deleted.]**

Field	Changeable	SATType	Description or reference
PS	NO	U	
SPF	NO	I	(See SPC-3)
PAGE CODE	NO	E	Set to a value of 1Ch. This field value is specific to the Informational Exceptions Control mode page. The SATL shall determine if the ATA SMART feature set is supported from the ATA IDENTIFY DEVICE data word 82, bit 0. If the ATA SMART feature set is not supported the SATL shall return a CHECK CONDITION status with SENSE KEY set to ILLEGAL REQUEST and ADDITIONAL SENSE CODE set to INVALID FIELD IN CDB.
PAGE LENGTH	NO	I	(See SPC-3)
PERF	NO	E	Shall be set to a value of 0b. (See SPC-3)
EBF	NO	U	
EWASC	NO	U	
DEXCPT	YES	E	<p>1) DEXCPT value returned by the MODE SENSE command: The SATL shall determine if the ATA SMART feature set is enabled or disabled from the non-packet device ATA IDENTIFY DEVICE data word 85, bit 0. If the ATA SMART feature set is disabled the SATL shall return a value of 1b for the DEXCPT bit. If the ATA SMART feature set is enabled the SATL shall return a value of 0b for the DEXCPT bit.</p> <p>2) DEXCPT value controlled by the MODE SELECT command:</p> <ul style="list-style-type: none"> <li>c) If DEXCPT is set to 0b, the SATL shall enable informational exceptions reporting by issuing an ATA SMART ENABLE OPERATIONS command (B0h with Feature register value of D8h) to the non-packet device.</li> <li>d) If DEXCPT is set to 1b, the SATL shall disable informational exceptions reporting by issuing an ATA SMART DISABLE OPERATIONS command (B0h with Feature register value of D9h) to the non-packet device.</li> </ul>
TEST	NO	E	Shall be set to a value of 0b. A value of 1b is not supported by this standard.
LOGERR	NO	U	
MRIE	NO	E/U	Shall be set to a value of 6h. Any other value is unspecified by this standard.
INTERVAL TIMER	NO	U	
REPORT COUNT	NO	U	

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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.