

To: T10 Technical Committee  
From: Wayne Bellamy (wayne.bellamy@hp.com), Hewlett Packard  
Date: July 14, 2005  
Subject: T10/05-238r2 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.

Revision 2 (July 14, 2005) third revision – **approved "as revised" for SAT inclusion –**

Changes as follows: (per July 12, 2005 SAT W.G.)

- 1) Use the table with the "Changeable" column and remove the other.
- 2) Remove editors notes and W.G. notes (in blue).
- 3) Change all "NO" to "N/A" in Changeable column if SATTYPE is "U".
- 4) SPF and PAGE LENGTH fields change SATTYPE "I" to "E".
- 5) Change all references "(See SPC-3)" to "(see SPC-3)."
- 6) DEXCPT description field - Change "lead-in" wording to "while processing a MODE SENSE command" and "while processing a MODE SELECT command". Also, put the data into paragraph style, removing bulletized formats.
- 7) Change TEST bit description field wording to same as PERF field wording.
- 8) MRIE description field – change "Shall" to "Should".
- 9) Change the beginning of the note below table to "Bits or fields that are set to values other than those required by the table shall cause the SATL to..."(rest is the same).

### **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.

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

Field	Changeable	SATType	Description or reference
PS	N/A	U	
SPF	NO	E	(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	E	(see SPC-3).
PERF	NO	E	Shall be set to a value of 0b. (see SPC-3).
EBF	N/A	U	
EWASC	N/A	U	
DEXCPT	YES	E	While processing a 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.  While processing a MODE SELECT command 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, if DEXCPT is set to 0b. 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	NO	E	Shall be set to a value of 0b. (see SPC-3).
LOGERR	N/A	U	
MRIE	NO	E/U	Should be set to a value of 6h. Any other value is unspecified by this standard.
INTERVAL TIMER	N/A	U	
REPORT COUNT	N/A	U	

Bits or fields that are set to values other than those required by the table 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.