To: T10 Technical Committee
From: Wayne Bellamy (wayne.bellamy@hp.com), Hewlett Packard
Date: June 14, 2005
Subject: T10/05-238r0 SAT - Informational Exceptions Control mode page

Revision History

Revision 0 (June 14, 2005) first revision

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 ~~M~~mode ~~P~~page ~~(1Ch)~~

This page ~~allows the initiator to specify~~ defines the methods used by the device server to control the reporting and the operations of ~~under~~ 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 I~~i~~nformational E~~e~~xceptions C~~c~~ontrol mode page.

Table 2 — Informational ~~e~~Exceptions ~~c~~Control mode page fields

Field	SATType	Description or reference
PS ~~(Parameters Savable)~~	E	Set to a value of 0b. A value of 1b is not supported. ~~This bit shall be set to 0b to indicate that parameters cannot be save in a non-volatile location. It is reserved for MODE SELECT commands.~~
SPF	E	Set to a value of 0b. A value of 1b is not supported.
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 with SENSE KEY set to ILLEGAL REQUEST and ADDITIONAL SENSE CODE set to INVALID FIELD IN CDB.
PAGE LENGTH	I	Set to a value of 0Ah. Any other value is not supported.

PERF ~~(Performance)~~	E	~~This bit is set to 0 and is ignored.~~ Set to a value of 0b. A value of 1b is not supported.
EBF ~~(Enable Background Functions)~~	E	~~This bit is set to 0 and is ignored. Enabling of background functions shall be disabled.~~ Set to a value of 0b. A value of 1b is not supported.
EWASC ~~(enable Warning)~~	E	~~This bit is set to 0 and is ignored. Reporting of warning shall be disabled.~~ Set to a value of 0b. A value of 1b is not supported.
DEXCPT ~~(Disable Exception Control)~~	E	~~If this field is set to zero, SMART is enabled and informational exceptions shall be reported according the method indicated in the MRIE field. If this field is set to one, informational exceptions reporting shall be disabled and SMART shall be disabled.~~ 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: • 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. **(Note to editor: Settings preservations must be addressed by the MODE SELECT command translation. This must be done for "software settings preservation" (SATA II Ext) in addition to "ATA SET FEATURES - Disable reverting to power-on defaults.")** • 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. **(NOTE to editor: Settings preservations must be addressed by the MODE SELECT command translation. This must be done for "software settings preservation" (SATA II Ext) in addition to "ATA SET FEATURES - Disable reverting to power-on defaults.")**
TEST	E	Set to a value of 0b. A value of 1b is not supported.~~This bit is set to 0b to indicate reporting false device failure notifications is not supported~~.
LOGERR ~~(Log Error)~~	E	Set to a value of 0b. A value of 1b is not supported. ~~This bit is set to 0 and ignored. Indicates that logging of informational exceptions is vendor specific.~~
MRIE ~~(Method of reporting Informational Exceptions)~~	E	Set to a value of 6h. Any other value is not supported. ~~A value of 1b is not supported.Only a value of 6h shall be supported. Values 3h and 4h may be supported (RECOVERED ERROR status).~~
INTERVAL TIMER	E	Set to a value of 0h. Any other value is not supported. ~~This bit is set to 0 and is ignored. This field defines the interval in 100 milliseconds that the device shall be polled for SMART threshold conditions. Conditions shall be reported after the interval has elapsed. Check section 6 for more details on SMART.~~
REPORT COUNT	E	Set to a value of 0h. Any other value is not supported. ~~This field is set to 0 and ignored. The number of times a condition can be reported is unlimited.~~

Bit or field values that are not supported shall cause the SATL to return a CHECK CONDITION with

SENSE KEY set to ILLEGAL REQUEST and ADDITIONAL SENSE CODE set to INVALID FIELD IN PARAMETER LIST.

~~Editor's Note 2: Added MRIE values of 3h & 4h. Can SATL support those values given how ATA SMART works?~~