To: T10 Technical Committee
From: Wayne Bellamy (wayne.bellamy@hp.com), Hewlett Packard
Date: November 8, 2005
Subject: T10/05-385r1 SAT - MOST RECENT TEMPERATURE READING for
              Informational Exceptions log page

Revision History

Revision 0 (October 14, 2005) first revision...not posted but presented for input on 10-17-05
Change details:
1) Correct the table 69 heading and data which is not per SAT-r06 (as a note...I caused this problem by my earlier cut/paste/change edits in preparing this proposal for the MOST RECENT TEMPERATURE READING field.
2) Check end device with IDENTIFY Device cmd to determine if SCT supported. If supported, use SCT to get the temperature for the Informational Exceptions log page (use WRITE SAME command example) . If not supported, fill the temperature field with FFh.
3) May want to investigate/determine if suppliers actually have standardized the temperature value and location in ATA SMART READ DATA if SCT isn't supported and translate it into the MOST RECENT TEMPERATURE READING field.

Revision 1 (November 08, 2005) second revision...**r1 as revised ACCEPTED for inclusion into SAT**
Change details:
1) Remove strike-through data in the description for the PAGE CODE field of Table 66.
2) Delete 10.2.3.1 and select 10.2.3.2 for use in the description for the MOST RECENT TEMPERATURE READING field of Table 67.
3) Remove all "blue" W.G. and editorial notes.
4) Selected the words and format with the new additional clause and ordered list and removed all other examples per W.G. agreement.
5) Change "Table 4" to "Table 68" in paragraph text of 10.2.3.1.
6) Change "may" to "should" in first statement of first paragraph of 10.2.3.2.

Related Documents

(T10) sat-r06 – SCSI to ATA Translation (SAT), Revision 6
(T10) spc-3r23 – SCSI Primary Commands - 3, Revision 23
(T10) spc-4r0 – SCSI Primary Commands - 4, Revision 0
(T13) ata7v1r4b – AT Attachment with Packet Interface - 7 Volume1, Revision 4b
(T13) ata8-acs – AT Attachment – 8 ATA/ATAPI Command Set
INCITS/TR-38:2005 SMART Command Transport (SCT).

Overview

1. Current thermal values of SATA end devices need to be provided to the application client. This information is deemed to be critical to applications categorized as SMART application clients. The SATL must be able to provide, minimally, current temperature information from the end device to the (SMART) SCSI application client.
2. The LOG SENSE command is used by SCSI application clients to retrieve device temperature information from the MOST RECENT TEMPERATURE READING field of the Informational Exceptions log page (2Fh).
3. Complexity of the emulation is estimated to be minimal if the LOG SENSE command has been translated.

Suggested changes to SAT

......as follows.........

10.2.3 Informational Exceptions log page

The Informational Exceptions log page (see Table 66) provides detail about informational exceptions (see SPC-3)..

Table 66 - Informational Exceptions log page fields

Field	Description or reference
PAGE CODE	Set to a value of 2Fh. This field value is specific to the Informational Exceptions log page.
PAGE LENGTH	Unspecified (see 3.4.3)
Informational exceptions log parameters (see SPC-3)	
First informational exceptions log parameter.	
…	
Last informational exceptions log parameter.	

The first log parameter is the informational exceptions general parameter which is shown in table 67..

Table 67 – Informational Exceptions general parameter data

Field	Description or reference
PARAMETER CODE	Shall be set to a value of 0000h.
DU	Shall be set to a value of 0b (see SPC-3).
DS	Shall be set to a value of 0b (see SPC-3).
TSD	Shall be set to a value of 0b (see SPC-3).
ETC	Shall be set to a value of 0b (see SPC-3).
TMC	Shall be set to a value of 0h (see SPC-3).
LBIN	Shall be set to a value of 1b (see SPC-3).
LP	Shall be set to a value of 1b (see SPC-3).
PARAMETER LENGTH	Unspecified (see 3.4.3)
INFORMATIONAL EXCEPTION ADDITIONAL SENSE CODE	10.2.3.1
INFORMATIONAL EXCEPTION ADDITIONAL SENSE CODE QUALIFIER	10.2.3.1
MOST RECENT TEMPERATURE READING	10.2.3.2
Vendor specific	Unspecified (see 3.4.3)

10.2.3.1 Additional sense code and additional sense code qualifier translations

Data received from a non-packet device in response to an ATA SMART RETURN STATUS command shall be translated by the SATL into parameter data for the informational exceptions general parameter data to be returned to the application client. Table 68 provides the parameter data translations for the INFORMATIONAL EXCEPTION ADDITIONAL SENSE CODE and INFORMATIONAL EXCEPTION ADDITIONAL SENSE CODE QUALIFIER fields.

Table 68 - ATA SMART RETURN STATUS translations

Data returned to SATL from non-packet device for ATA SMART RETURN STATUS command	SMART condition	Informational Exceptions log page parameter code (0000h) fields	
LBA Mid = 4Fh LBA High = C2h	threshold not exceeded	informational exception additional sense code	00h
		informational exception additional sense code qualifier	00h
LBA Mid = F4h LBA High = 2Ch	threshold exceeded	informational exception additional sense code	5Dh
		informational exception additional sense code qualifier	10h

10.2.3.2 Most recent temperature reading translation

If the non-packet device supports the SCT Feature Set (see SCT), the MOST RECENT TEMPERATURE READING field of the Informational Exceptions log page should be translated by the SATL as follows:
1) Issue an SCT Status Request to the non-packet device.
2) Of the data received select byte 200 (starting with a byte count of 0) to return for the MOST RECENT TEMPERATURE READING field. If the value of byte 200 is less than or equal to zero (2's complement data) return a value of zero.
3) Return the result in the MOST RECENT TEMPERATURE READING field of the informational exceptions log page.

If the non-packet device does not support the SCT Feature Set or the value of byte 200 is 80h the MOST RECENT TEMPERATURE READING field shall be set to FFh (per SPC-3).