



To: T10 Technical Committee  
 From: Kevin Marks - Dell, Inc.  
 Date: September 12, 2006  
 Subject: T10/06-374r1 – SAT: Self-Test Results log page

### **Revision History**

Revision 0 (August 29, 2006) – Initial proposal

Revision 1 (September 12, 2006) – Updated based on September 12 WG comments – Final Version

### **Related Documents**

SCSI / ATA Translation (SAT) (T10/1711-D – SAT2r08d)

[New text to be added to SSC-3](#)

~~Text to be deleted from SSC-3~~

<<...Editorial text...>

### **Overview**

This proposal is an attempt to resolve several Dell letter ballot comments on the Self-Test Results log page.

### **Suggested Changes to SATr8d:**

#### **10.2.3 Self-Test Results log page**

##### **10.2.3.1 Self-Test Results log page overview**

**Table 68 — Self-Test Results log page fields**

<b>Field</b>	<b>Description or reference</b>
PAGE CODE	Shall be set to 10h
PAGE LENGTH	<del>Unspecified (see 3.4.2)</del> <a href="#">Shall be set to 190h</a>

Translations of the fields for the Self-Test Results log parameters for the Self-Test Results log page are shown in table 69.

**Table 69 — Self-Test Results log parameters**

<b>Field</b>	<b>Description or reference</b>
PARAMETER CODE	<del>Unspecified (see 3.4.2)</del> <a href="#">The SATL shall return log parameters with the PARAMETER CODE field set to 0001h through 0014h.</a>
DU	Shall be set to zero
DS	Shall be set to zero
TSD	Shall be set to zero

ETC	Shall be set to zero
TMC	Shall be set to zero
LBIN	Shall be set to one
LP	Shall be set to one
PARAMETER LENGTH	Shall be set to 10h
SELF-TEST CODE	<p><a href="#">The SATL shall read the ATA log data as defined in 10.2.3.2.</a></p> <p><a href="#">If the SATL reads the ATA log data using the ATA READ LOG EXT command specifying the Extended SMART self-test log, then the SATL shall check if the value contained in the Self-test descriptor index field in the first block of data (i.e., bytes 2 and 3) is set to zero. If the value contained in the Self-test descriptor index field is set to zero, then the SATL shall set the SELF-TEST CODE field to zero for each of the log parameters returned. If the value contained in the Self-test descriptor index field is set to a non-zero value, then the SELF-TEST CODE field is unspecified (see 3.4.2)</a></p> <p><a href="#">If the SATL reads the ATA log data using the ATA SMART READ LOG command specifying the SMART self-test log, then the SELF-TEST CODE field is unspecified (see 3.4.2)</a></p>
SELF-TEST RESULTS	<p>The SATL shall read the ATA log data as defined in 10.2.3.2.</p> <p><del>If the SATL reads the ATA log data using the READ LOG EXT command specifying the Extended SMART self-test log, then the SATL shall set the SELF-TEST RESULTS field to the value in the Self-test Execution Status bits from the Content of the self-test execution status byte (i.e., byte n + 1 of the Extended Self-test log descriptor entry) (see ATA8-ACS).</del></p> <p><a href="#">If the SATL reads the ATA log data using the ATA READ LOG EXT command specifying the Extended SMART self-test log, then the SATL shall check if the value contained in the Self-test descriptor index field in the first block of data (i.e., bytes 2 and 3) is set to zero. If the value contained in the Self-test descriptor index field is set to zero, then the SATL shall set the SELF-TEST RESULTS field to zero for each log parameter returned.</a></p> <p><a href="#">If the value contained in the Self-test descriptor index field is set to a non-zero value, then the SATL shall set the SELF-TEST RESULTS field to:</a></p> <p><a href="#">a) the value contained in the Self-test Execution Status bits of the content of the self-test execution status byte field of the nth descriptor entry, where n is equal to the result of the value contained in the Self-test descriptor index field minus the value contained in the PARAMETER CODE field for the log parameter being returned plus one, if the result of the value contained in the Self-test descriptor index field minus the value contained in the PARAMETER CODE field for the log parameter being returned plus one is greater than zero (e.g., for a log parameter with the</a></p>

	<p><u>PARAMETER CODE field of 0002h and a value contained in the Self-test descriptor index field of 6h, then the 4th descriptor entry is used); or</u>  <u>b) zero, if the result of the value contained in the Self-test descriptor index field minus the value contained in the PARAMETER CODE field for the log parameter being returned plus one is less than or equal to zero.</u></p> <p><del>If the SATL reads the ATA log data using the SMART READ LOG command specifying the SMART self-test log, then the SATL shall set the SELF-TEST RESULTS field to the value in the Content of the self-test execution status byte (i.e., byte n + 1 of the Self-test log descriptor entry) for the Self-test execution status bits.</del></p> <p><u>If the SATL reads the ATA log data using the ATA SMART READ LOG command specifying the SMART self-test log, then the SATL shall set the SELF-TEST RESULTS field to the value contained in the Self-test Execution Status bits of the content of the self-test execution status byte field of the nth descriptor entry, where n is equal to the value contained in the PARAMETER CODE field for the log parameter being returned (e.g., for a log parameter with the PARAMETER CODE field of 0002h, then the 2nd descriptor entry is used).</u></p>
SELF-TEST NUMBER	Unspecified (see 3.4.2)
TIMESTAMP	<p>The SATL shall read the ATA log data as defined in 10.2.3.2.</p> <p><del>If the SATL reads the ATA log data using the READ LOG EXT command specifying the Extended SMART self-test log, then the SATL shall set the TIMESTAMP field to the values in the Life timestamp (most significant byte) and Life timestamp (least significant byte) of the Extended Self-test log descriptor entry.</del></p> <p><u>If the SATL reads the ATA log data using the ATA READ LOG EXT command specifying the Extended SMART self-test log, then the SATL shall check if the value contained in the Self-test descriptor index field in the first block of data (i.e., bytes 2 and 3) is set to zero. If the value contained in the Self-test descriptor index field is set to zero, then the SATL shall set the TIMESTAMP field to zero for each log parameter returned.</u></p> <p><u>If the value contained in the Self-test descriptor index field is set to a non-zero value, then the SATL shall set the TIMESTAMP field to:</u></p> <p><u>a) the values contained in the Life timestamp (most significant byte) field and Life timestamp (least significant byte) field of the nth descriptor entry, where n is equal to the result of the value contained in the Self-test descriptor index field minus the value contained in the PARAMETER CODE field for the log parameter being returned plus one, if the result of value contained in the Self-test descriptor index field minus the value contained in the PARAMETER CODE field for the log parameter being returned plus one is greater than zero (e.g., for a log parameter with the</u></p>

	<p><u>PARAMETER CODE field of 0002h and a value contained in the Self-test descriptor index field of 6h, then the 4th descriptor entry is used); or</u>  <u>b) zero, if the result of the value contained in the Self-test descriptor index field minus the value contained in the PARAMETER CODE field for the log parameter being returned plus one is less than or equal to zero.</u></p> <p><del>If the SATL reads the ATA log data using the ATA SMART READ LOG command specifying the SMART self test log, then the SATL shall set the TIMESTAMP field to the values in the Life timestamp (most significant byte) and Life timestamp (least significant byte) of the Self-test log descriptor entry.</del></p> <p><u>If the SATL reads the ATA log data using the ATA SMART READ LOG command specifying the SMART self-test log, then the SATL shall set the TIMESTAMP field to the values contained in the Life timestamp (most significant byte) field and Life timestamp (least significant byte) field of the nth descriptor entry, where n is equal to the value contained in the PARAMETER CODE field for the log parameter being returned (e.g., for a log parameter with the PARAMETER CODE field of 0002h, then the 2nd descriptor entry is used).</u></p>
ADDRESS OF FIRST FAILURE	<p>The SATL shall read the ATA log data as defined in 10.2.3.2.</p> <p><del>If the SATL reads the ATA log data using the READ LOG EXT command specifying the Extended SMART self test log, then the SATL shall set the ADDRESS OF FIRST FAILURE field using the values in the Failing LBA (47:40), Failing LBA (39:32), Failing LBA (31:24), Failing LBA (23:16), Failing LBA (15:8), and Failing LBA (7:0) of the Extended Self-test log descriptor entry.</del></p> <p><u>If the SATL reads the ATA log data using the ATA READ LOG EXT command specifying the Extended SMART self-test log, then the SATL shall check if the value contained in the Self-test descriptor index field in the first block of data (i.e., bytes 2 and 3) is set to zero. If the value contained in the Self-test descriptor index field is set to zero, then the SATL shall set the ADDRESS OF FIRST FAILURE field to zero for each log parameter returned.</u></p> <p><u>If the value contained in the Self-test descriptor index field is set to a non-zero value, then the SATL shall set the ADDRESS OF FIRST FAILURE field to:</u></p> <p><u>a) the values contained in the Failing LBA (47:40) field, Failing LBA (39:32) field, Failing LBA (31:24) field, Failing LBA (23:16) field, Failing LBA (15:8) field, and Failing LBA (7:0) field of the nth descriptor entry, where n is equal to the result of the value contained in the Self-test descriptor index field minus the value contained in the PARAMETER CODE field for the log parameter being returned plus one, if the result of the value contained in the Self-test descriptor index field minus the value contained in the PARAMETER CODE field for the log parameter being returned plus one is greater than zero (e.g., for a log parameter with the PARAMETER CODE field of 0002h and a value contained in the Self-</u></p>

	<p><a href="#">test descriptor index field of 6h, then the 4th descriptor entry is used); or</a></p> <p><a href="#">b) zero, if the result of the value contained in the Self-test descriptor index field minus the value contained in the PARAMETER CODE field for the log parameter being returned plus one is less than or equal to zero.</a></p> <p><del>If the SATL reads the ATA log data using the SMART READ LOG command specifying the SMART self-test log, then the SATL shall set the ADDRESS OF FIRST FAILURE field using the values in the Failing LBA (most significant byte), Failing LBA (next most significant byte), Failing LBA (next least significant byte), and Failing LBA (least significant byte) of the Self-test log descriptor entry.</del></p> <p><a href="#">If the SATL reads the ATA log data using the ATA SMART READ LOG command specifying the SMART self-test log, then the SATL shall set the ADDRESS OF FIRST FAILURE field using the values contained in the Failing LBA (27:24) field, Failing LBA (23:16) field, Failing LBA (15:8) field, and Failing LBA (7:0) field of the nth descriptor entry where n is equal to the value contained in the PARAMETER CODE field for the log parameter being returned (e.g., for a log parameter with the PARAMETER CODE field of 0002h, then the 2nd descriptor entry is used).</a></p>
SENSE KEY	10.2.3.3
ADDITIONAL SENSE CODE	10.2.3.3
ADDITIONAL SENSE CODE QUALIFIER	10.2.3.3

### 10.2.3.2 A method of determining ATA command selection for field translations

To translate the [SELF-TEST CODE field](#), SELF-TEST RESULTS field, the TIMESTAMP field, the ADDRESS OF FIRST FAILURE field, the SENSE KEY field, the ADDITIONAL SENSE CODE field, and the ADDITIONAL SENSE CODE QUALIFIER field of Self-Test Results log parameters, the SATL shall issue an [ATA IDENTIFY DEVICE](#) command to the ATA device, and from the returned data the SATL shall determine if the ATA device supports the 48-bit Address feature set. If the 48-bit Address feature set is supported (i.e., bit 10 of word 83 of [ATA IDENTIFY DEVICE](#) data is set to one), then the SATL shall issue a [ATA READ LOG EXT](#) command with the Log address set to 07h (i.e., Extended SMART self-test log) to the ATA device. If the 48-bit Address feature set is not supported (i.e., bit 10 of word 83 of [ATA IDENTIFY DEVICE](#) data is set to zero), then the SATL shall issue a [ATA SMART READ LOG](#) command with the Log address set to 06h (i.e., SMART self-test log) to the ATA device.

### 10.2.3.3 Sense key and additional sense code

The SATL shall determine the [SENSE KEY](#) field, the [ADDITIONAL SENSE CODE](#) field and the [ADDITIONAL SENSE CODE QUALIFIER](#) field ~~sense key and additional sense code returned in each log parameter~~ from the content of the self-test execution status byte returned from a [ATA READ LOG EXT](#) command or [SMART READ LOG](#) command issued to the ATA device (see 10.2.3.2). The values returned [in each log parameter](#) shall be translated into sense data for the sense key, and additional sense code as shown in table 70.

**Table 70 — ATA Self-test execution status values translated to SCSI sense keys and sense codes**

*<... Insert Table 70...>*