8.7 READ BUFFER command

8.7.1 READ BUFFER command overview

The READ BUFFER command is used with the write buffer command to determine the integrity of the target device's buffer memory and the physical interconnect that connects the target device and the initiator.

Table 22 — READ BUFFER command CDB fields

Field	Description or reference
OPERATION CODE	The SATL shall issue the ATA READ BUFFER command ~~(E4h)~~ to the attached ATA device.
MODE	8.7.2
BUFFER ID	Unspecified (see 3.4.3)
BUFFER OFFSET	Refers to the offset in the buffer to start reading data from. The BUFFER OFFSET should be less than the size of the buffer size, otherwise a CHECK CONDITION shall be sent back with sense key set to ILLEGAL REQUEST and additional sense code set to INVALID FIELD IN CDB.
ALLOCATION LENGTH	Refer to individual sections for the meaning of this term.
CONTROL	6.4

The logical sector buffer in a ATA device shall be used to emulate the READ BUFFER command, so the size of the buffer is limited to 512 bytes for data buffer and echo buffers.

8.7.2 MODE field

Table 23 describes modes supported. ~~Only data and data buffer descriptor shall be supported.~~

Table 23 — MODE field

Code	Translated ATA Opcode
02h (i.e., Data)	Translated to the ATA READ BUFFER command (see 8.7.3).
03h (i.e., Descriptor)	See 8.7.4.
All others	Unspecified (see 3.4.3)

8.7.3 Data Only mode (02h)

In this mode, data is read from the device's logical sector buffer and returned to the requestor. Note that logical sector buffer in the ATA device is being used to emulate the SCSI READ BUFFER command, so the maximum length of data that can be written is 512 bytes. Valid fields in the CDB, apart from the MODE field, are BUFFER ID, BUFFER OFFSET and ALLOCATION LENGTH. The BUFFER OFFSET shall be less than or equal to 512. The ALLOCATION LENGTH shall be less than or equal to 512. A write buffer command may sent to the same BUFFER ID before it is read.

8.7.4 Descriptor mode (03h)

Four bytes of information shall be returned to the requestor describing the requested buffer. These four bytes include the OFFSET BOUNDARY and the BUFFER CAPACITY. The BUFFER ID should be set to 0. For all other BUFFER ID's, all zeros shall be returned. ALLOCATION LENGTH should be set to 4.

Page: 56

Sequence number: 1
Author: DELL[KMarks]
Subject: Highlight
Date: 6/24/2006 1:47:38 PM

8.7.3 Data Only mode (02h)
1st Paragraph
change
"In this mode, data is read from the device's logical sector buffer and returned to the requestor. Note that logical sector buffer in the ATA device is being used to emulate the SCSI READ BUFFER command, so the maximum length of data that can be written is 512 bytes. Valid fields in the CDB, apart from the MODE field, are BUFFER ID, BUFFER OFFSET and ALLOCATION LENGTH. The BUFFER OFFSET shall be less than or equal to 512. The ALLOCATION LENGTH shall be less than or equal to 512. A write buffer command may sent to the same BUFFER ID before it is read."
to
"In this mode, data is read from the logical sector buffer of the device and returned to the application client. The logical sector buffer in an ATA device is being used to emulate the READ BUFFER command, so the maximum length of data that may be read is 512 bytes. Valid fields in the CDB, apart from the MODE field, are BUFFER ID, BUFFER OFFSET and ALLOCATION LENGTH fields. The BUFFER OFFSET field shall be less than or equal to 512. The ALLOCATION LENGTH shall be less than or equal to 512. A WRITE BUFFER command may be sent to the same buffer ID before it is read with the READ BUFFER command."

DISCUSS FLAG: proposed resolution - s/b
"If the BUFFER ID field is set to 00h the BUFFER OFFSET field is set to 00h, then the SATL shall return the the lesser of 512 bytes of data or the number of bytes specified in the ALLOCATION LENGTH field from the buffer in the ATA device by sending an ATA READ BUFFER command to the ATA device.

Note x - The ATA READ BUFFER command returns 512 bytes of data. If the allocation length is less than 512 then the SATL should return to the application client the number of bytes specified, in sequence, starting with the first byte received from the ATA device, and the remaining bytes of data are discarded.

If the BUFFER ID field is set to 00h and the BUFFER OFFSET field is set to a value other than 00h then the SATL shall terminate the command with CHECK CONDITION status with the sense key set to ILLEGAL REQUEST with the additional sense code set to INVALID FIELD IN CDB.

The SATL may support a value other than 00h in the BUFFER ID field. If the SATL supports a value other than 00h in the BUFFER ID field the implementation shall be as defined in SPC-3."

Status
rlsheffi None 7/24/2006 12:55:13 PM

Sequence number: 2
Author: IBM[GPenokie]
Subject: Highlight
Date: 6/24/2006 1:49:12 PM

This << Note that logical sector buffer in the ATA device is being used to emulate the SCSI READ BUFFER command, so the maximum length of data that can be written is 512 bytes. >> should either made into a real note or changed to << The logical sector buffer in the ATA device is being used to emulate the SCSI READ BUFFER command, so the maximum length of data that is allowed to be written is 512 bytes. >> but in either case the evil << can >> needs to be removed.
DISCUSS FLAG
RESOLUTION: See DELL comment.

Status
rlsheffi None 7/24/2006 12:55:14 PM

Sequence number: 3
Author: MXO[MEvans]
Subject: Highlight
Date: 6/24/2006 1:54:06 PM

8.7.3 Data only mode: change "can" to "may".
DISCUSS FLAG
RESOLUTION: See Dell comment

Status

Comments from page 56 continued on next page

8.7 READ BUFFER command

8.7.1 READ BUFFER command overview

The READ BUFFER command is used with the write buffer command to determine the integrity of the target device's buffer memory and the physical interconnect that connects the target device and the initiator.

Table 22 — READ BUFFER command CDB fields

Field	Description or reference
OPERATION CODE	The SATL shall issue the ATA READ BUFFER command ~~(E4h)~~ to the attached ATA device.
MODE	8.7.2
BUFFER ID	Unspecified (see 3.4.3)
BUFFER OFFSET	Refers to the offset in the buffer to start reading data from. The BUFFER OFFSET should be less than the size of the buffer size, otherwise a CHECK CONDITION shall be sent back with sense key set to ILLEGAL REQUEST and additional sense code set to INVALID FIELD IN CDB.
ALLOCATION LENGTH	Refer to individual sections for the meaning of this term.
CONTROL	6.4

The logical sector buffer in a ATA device shall be used to emulate the READ BUFFER command, so the size of the buffer is limited to 512 bytes for data buffer and echo buffers.

8.7.2 MODE field

Table 23 describes modes supported. ~~Only data and data buffer descriptor shall be supported.~~

Table 23 — MODE field

Code	Translated ATA Opcode
02h (i.e., Data)	Translated to the ATA READ BUFFER command (see 8.7.3).
03h (i.e., Descriptor)	See 8.7.4.
All others	Unspecified (see 3.4.3)

8.7.3 Data Only mode (02h)

In this mode, data is read from the device's logical sector buffer and returned to the requestor. Note that logical sector buffer in the ATA device is being used to emulate the SCSI READ BUFFER command, so the maximum length of data that can be written is 512 bytes. Valid fields in the CDB, apart from the MODE field, are BUFFER ID, BUFFER OFFSET and ALLOCATION LENGTH. The BUFFER OFFSET shall be less than or equal to 512. The ALLOCATION LENGTH shall be less than or equal to 512. A write buffer command may sent to the same BUFFER ID before it is read.

8.7.4 Descriptor mode (03h)

Four bytes of information shall be returned to the requestor describing the requested buffer. These four bytes include the OFFSET BOUNDARY and the BUFFER CAPACITY. The BUFFER ID should be set to 0. For all other BUFFER ID's, all zeros shall be returned. ALLOCATION LENGTH should be set to 4.

rlsheffi None 7/24/2006 12:55:14 PM

Sequence number: 4
Author: SIERLGC[BMartin]
Subject: Highlight
Date: 6/24/2006 1:54:28 PM
Page 36, 8.7.3, second sentence
"can" s.b. "may"
DISCUSS FLAG
RESOLUTION: See Dell comment

Status
rlsheffi None 7/24/2006 12:55:13 PM

Sequence number: 5
Author: IBM[GPenokie]
Subject: Note
Date: 6/24/2006 1:57:02 PM
The term << device >> should not stand alone. I believe in this paragraph it should be << target device >>.
DISCUSS FLAG
RESOLUTION: See DELL comment, but I believe the intent in this paragraph is to use an actual 512-byte buffer in the ATA device, so the term << device >> will appear as << ATA device >>.

Status
rlsheffi None 7/24/2006 12:55:14 PM

Sequence number: 6
Author: MXO[MEvans]
Subject: Note
Date: 6/24/2006 2:01:37 PM
8.7.3 Data only mode: before the last sentence add, "If the value in either the BUFFER OFFSET field or the ALLOCATION LENGTH field is greater than 512, then the SATL shall terminate the command with CHECK CONDITION status with the sense key set to ILLEGAL REQUEST with the additional sense code set to INVALID FIELD IN CDB."
DISCUSS FLAG
RESOLUTION: See DELL comment.

Status
rlsheffi None 7/24/2006 12:55:13 PM

Sequence number: 7
Author: SIERLGC[BMartin]
Subject: Highlight
Date: 6/24/2006 2:06:33 PM
Page 36, 8.7.3, last sentence
"may sent" s.b. "may be sent"
DISCUSS FLAG
RESOLUTION: See DELL comment.

Status
rlsheffi None 7/24/2006 12:55:13 PM

Sequence number: 8
Author: WDC[CStevens]
Subject: Comment on Text
Date: 6/24/2006 2:06:47 PM
command may be sent.
DISCUSS FLAG
RESOLUTION: See DELL comment.

Status
rlsheffi None 7/24/2006 12:55:13 PM

Sequence number: 9
Author: IBM[GPenokie]
Subject: Note
Date: 6/24/2006 2:07:25 PM
All the field names in this paragraph needs to have the term << field >> placed after them.
DISCUSS FLAG
RESOLUTION: See Dell comment

Status
rlsheffi None 7/24/2006 12:55:13 PM

Sequence number: 10

Comments from page 56 continued on next page

8.7 READ BUFFER command

8.7.1 READ BUFFER command overview

The READ BUFFER command is used with the write buffer command to determine the integrity of the target device's buffer memory and the physical interconnect that connects the target device and the initiator.

Table 22 — READ BUFFER command CDB fields

Field	Description or reference
OPERATION CODE	The SATL shall issue the ATA READ BUFFER command ~~(E4h)~~ to the attached ATA device.
MODE	8.7.2
BUFFER ID	Unspecified (see 3.4.3)
BUFFER OFFSET	Refers to the offset in the buffer to start reading data from. The BUFFER OFFSET should be less than the size of the buffer size, otherwise a CHECK CONDITION shall be sent back with sense key set to ILLEGAL REQUEST and additional sense code set to INVALID FIELD IN CDB.
ALLOCATION LENGTH	Refer to individual sections for the meaning of this term.
CONTROL	6.4

The logical sector buffer in a ATA device shall be used to emulate the READ BUFFER command, so the size of the buffer is limited to 512 bytes for data buffer and echo buffers.

8.7.2 MODE field

Table 23 describes modes supported. ~~Only data and data buffer descriptor shall be supported.~~

Table 23 — MODE field

Code	Translated ATA Opcode
02h (i.e., Data)	Translated to the ATA READ BUFFER command (see 8.7.3).
03h (i.e., Descriptor)	See 8.7.4.
All others	Unspecified (see 3.4.3)

8.7.3 Data Only mode (02h)

In this mode, data is read from the device's logical sector buffer and returned to the requestor. Note that logical sector buffer in the ATA device is being used to emulate the SCSI READ BUFFER command, so the maximum length of data that can be written is 512 bytes. Valid fields in the CDB, apart from the MODE field, are BUFFER ID, BUFFER OFFSET and ALLOCATION LENGTH. The BUFFER OFFSET shall be less than or equal to 512. The ALLOCATION LENGTH shall be less than or equal to 512. A write buffer command may sent to the same BUFFER ID before it is read.

8.7.4 Descriptor mode (03h)

Four bytes of information shall be returned to the requestor describing the requested buffer. These four bytes include the OFFSET BOUNDARY and the BUFFER CAPACITY. The BUFFER ID should be set to 0. For all other BUFFER ID's, all zeros shall be returned. ALLOCATION LENGTH should be set to 4.

Author: DELL[KMarks]
Subject: Highlight
Date: 6/24/2006 2:23:58 PM

8.7.4 Descriptor mode (03h)
1st Paragraph
change
"Four bytes of information shall be returned to the requestor describing the requested buffer. These four bytes include the OFFSET BOUNDARY and the BUFFER CAPACITY. The BUFFER ID should be set to 0. For all other BUFFER ID's, all zeros shall be returned. ALLOCATION LENGTH should be set to 4."
to
"Four bytes of data shall be returned to the application client describing the requested buffer. These four bytes include the OFFSET BOUNDARY and BUFFER CAPACITY fields. The BUFFER ID field should be set to zero. For all other BUFFER ID's, all zeros shall be returned. The BUFFER OFFSET field is Reserved in the this mode. The ALLOCATION LENGTH should be set to 4h."

DISCUSS FLAG: proposed resolution - s/b
"The SATL shall return the lesser of four bytes or the number of bytes specified in the ALLOCATION LENGTH field. The four bytes describe the requested buffer, including the OFFSET BOUNDARY field and the BUFFER CAPACITY field.

If the BUFFER ID field is set to zero then the SATL shall return values in the OFFSET BOUNDARY field and the BUFFER CAPACITY field describing the buffer in the ATA device that is accessible using the ATA READ BUFFER command and the ATA WRITE BUFFER command by returning a value of FFh in the OFFSET BOUNDARY field (i.e., zero is the only supported value in the BUFFER OFFSET field) and a value of 200h (i.e., 512 bytes) in the BUFFER CAPACITY field.

The SATL may support a value other than zero in the BUFFER ID field. If the SATL supports a value other than zero in the BUFFER ID field the implementation shall be as defined in SPC-3."

Status
rlsheffi None 7/24/2006 12:55:13 PM

Sequence number: 11
Author: IBM[GPenokie]
Subject: Highlight
Date: 6/24/2006 2:27:28 PM

The << 0 >> should be << zero >> and the << 4 >> should be << four >>.
DISCUSS FLAG
RESOLUTION: See Dell comment

Status
rlsheffi None 7/24/2006 12:55:14 PM

Sequence number: 12
Author: IBM[GPenokie]
Subject: Note
Date: 6/24/2006 2:29:57 PM

All the field names in this paragraph needs to have the term << field >> placed after them.
DISCUSS FLAG
RESOLUTION: See Dell comment

Status
rlsheffi None 7/24/2006 12:55:14 PM

8.8 READ MEDIA SERIAL NUMBER command

8.8.1 READ MEDIA SERIAL NUMBER command overview

READ MEDIA SERIAL NUMBER returns the serial number of the currently mounted media, as returned by the device. This command is emulated in the ATA environment as ATA provides no direct corresponding command to the device.

Table 24 — READ MEDIA SERIAL NUMBER command CDB fields

Field	Description or reference
OPERATION CODE	See 8.8.2
SERVICE ACTION	As defined in SPC-3
ALLOCATION LENGTH	As defined in SPC-3
CONTROL	6.4

8.8.2 READ MEDIAL SERIAL NUMBER emulation

A SATL emulating the READ MEDIA SERIAL NUMBER command shall issue an IDENTIFY DEVICE (ECh) ATA opcode to the attached ATA device. If the IDENTIFY DEVICE command completes with success, the SATL shall return a media serial number to the application client as defined in SPC-3. The media serial number shall be generated as follows:

1) If IDENTIFY DEVICE data, word 87, bit 2 is set, the SATL shall return the media serial number located in words 176-205. The data from the medial serial number shall be treated as an ASCII string, defined in ATA/ATAPI-7.
2) If IDENTIFY DEVICE data, word 87, bit 2 is not set, the SATL shall issue a READ VERIFY SECTOR(S) or READ VERIFY SECTOR(S) EX to LBA 0. Alternatively, if the ATA device indicates support for the Removable Media Status Notification feature set, the SATL may issue a GET MEDIA STATUS command to verify presence of the medial. If the READ VERIFY SECTOR(S) or READ VEIRFY SECTOR(S) EX commands complete successfully, or the GET MEDIA STATUS command completes successfully without the NM bit set, the SATL shall return a media serial number of zero as defined in SPC-3. Otherwise, the SATL shall terminate the command with CHECK CONDITION status, with the sense key set to NOT READY, and the additional sense code set to MEDIUM NOT PRESENT.

8.9 REQUEST SENSE command

8.9.1 REQUEST SENSE command overview

The REQUEST SENSE command requests any available sense data to be returned to the application client. A SATL may implement sense data processing as defined SAM-2 and not support autosense (see 3.1.21). If the SCSI transport protocol for the SATL supports autosense (see 3.1.21) the SATL shall support autosense (see SAM-3). The SATL shall implement the REQUEST SENSE command as specified in SPC-3.

1 The SATL shall determine if any of the conditions listed in table 25 exist. If none of these conditions exist and the SATL has no status other than GOOD to return, the SATL shall complete this command with GOOD status

Sequence number: 1
Author: DELL[KMarks]
Subject: Highlight
Date: 6/24/2006 2:05:45 PM

T8.9.1 REQUEST SENSE command overview
2nd Paragraph
change
"The SATL shall determine if any of the conditions listed in table 25 exist. If none of these conditions exist and the SATL has no status other than GOOD to return, the SATL shall complete this command with GOOD status..."
to
"If the SATL receives a REQUEST SENSE command, the SATL shall determine if any of the conditions listed in table 25 exist. If none of the conditions listed in Table 25 exist and the SATL has GOOD status to return, the SATL shall complete the command with GOOD status..."

DISCUSS FLAG: proposed resolution - s/b
"To process a REQUEST SENSE command, the SATL shall determine if there is sense data to return to the application client. If the SATL has no sense data to return, then the SATL shall complete the command with GOOD status with the sense key set to NO SENSE and the additional sense code set to NO ADDITIONAL SENSE DATA (see SPC-3). Table 25 lists examples of conditions where the SATL has sense data to return."

Status
rlsheffi None 7/24/2006 12:55:13 PM

8.11 TEST UNIT READY command

8.11.1 TEST UNIT READY command overview

The TEST UNIT READY command is used to determine whether the device is ready (see table 30).

Table 30 — TEST UNIT READY command CDB fields

Field	Description or reference
OPERATION CODE	8.11.2.
CONTROL	6.4

1

2 ### 8.11.2 TEST UNIT READY OPERATION CODE

3 The SATL shall:

1) If the device was previously stopped through a START STOP UNIT command (see 9.11), then the SATL shall terminate the TEST UNIT READY command with CHECK CONDITION status with the sense key set to NOT READY and the additional sense code of LOGICAL UNIT NOT READY, INITIALIZING COMMAND REQUIRED;
2) If the device is being formatted (see 9.2), then the SATL shall terminate the TEST UNIT READY command with CHECK CONDITION status with the sense key set to NOT READY and the additional sense code set to LOGICAL UNIT NOT READY, FORMAT IN PROGRESS;
3) If the ATA device supports the removable media feature set, then the SATL shall issue a GET MEDIA STATUS command to the attached ATA device. If the device reports an error with the NM bit set to one, then the SATL shall terminate the TEST UNIT READY command with CHECK CONDITION status with the sense key set to NOT READY and the additional sense code of MEDIUM NOT PRESENT;
4) If an ATA command was previously issued to the ATA device and that command completed with an error with the DF bit in the status register set to one, then the SATL shall terminate the TEST UNIT READY command with CHECK CONDITION status with the sense key set to HARDWARE ERROR and the additional sense code of LOGICAL UNIT FAILURE;
5) If none of the previous conditions exist, then the SATL shall issue an ATA CHECK POWER MODE command;
6) If the ATA CHECK POWER MODE command completes with an error the SATL shall terminate the TEST UNIT READY command with CHECK CONDITOIN status with the sense key set to NOT READY, and the additional sense code set to LOGICAL UNIT DOES NOT RESPOND TO SELECTION; and
7) If the ATA CHECK POWER MODE command completes without error, then the SATL shall complete the TEST UNIT READY command with GOOD status.

If any other condition exists that prevents the SATL from issuing commands to the ATA device, the SATL should terminate the command with CHECK CONDITION status with the sense key set to NOT READY with the additional sense code of LOGICAL UNIT NOT READY, CAUSE NOT REPORTABLE.

Sequence number: 1
Author: EDITOR[rlsheffi]
Subject: Rectangle
Date: 6/24/2006 8:51:00 AM

8.11.2 TEST UNIT READY OPERATION CODE

DISCUSS FLAG (proposed resolution): Replace the entire subclause as follows:

"8.11.2 TEST UNIT READY command translation
The SATL processes the TEST UNIT READY command as follows:
1) If any condition exists that prevents the SATL from issuing commands to the ATA device, the SATL should terminate the TEST UNIT READY command with CHECK CONDITION status with the sense key set to NOT READY with the additional sense code of LOGICAL UNIT NOT READY, CAUSE NOT REPORTABLE;
2) If the device is in the stopped state as the result of receiving a START STOP UNIT command (see 9.11), then the SATL shall terminate the TEST UNIT READY command with CHECK CONDITION status with the sense key set to NOT READY and the additional sense code of LOGICAL UNIT NOT READY, INITIALIZING COMMAND REQUIRED;
3) If the ATA device supports the Removable Media feature set (i.e., ATA IDENTIFY DEVICE data word 82 bit 2 is set to one), then the SATL shall issue an ATA GET MEDIA STATUS command to the ATA device. If the ATA device completes the command with the NM bit set to one in the Error register, then the SATL shall terminate the TEST UNIT READY command with CHECK CONDITION status with the sense key set to NOT READY and the additional sense code of MEDIUM NOT PRESENT;
4) If the SATL is processing a FORMAT UNIT command for the emulated device (see 9.2), then the SATL shall terminate the TEST UNIT READY command with CHECK CONDITION status with the sense key set to NOT READY and the additional sense code set to LOGICAL UNIT NOT READY, FORMAT IN PROGRESS;
5) If the ATA device completed the most recent ATA command with the DF bit set to one in the Status register, then the SATL shall terminate the TEST UNIT READY command with CHECK CONDITION status with the sense key set to HARDWARE ERROR and the additional sense code of LOGICAL UNIT FAILURE;
6) If none of the conditions defined in items 1 through 4 exist, then the SATL shall issue an ATA CHECK POWER MODE command to the ATA device;
7) If the ATA CHECK POWER MODE command completes with an error, then the SATL shall terminate the TEST UNIT READY command with CHECK CONDITION status with the sense key set to NOT READY, and the additional sense code set to LOGICAL UNIT DOES NOT RESPOND TO SELECTION; and
8) If the ATA CHECK POWER MODE command completes without error, then the SATL shall complete the TEST UNIT READY command with GOOD status.

Status
rlsheffi None 7/24/2006 12:55:13 PM

Sequence number: 2
Author: DELL[KMarks]
Subject: Highlight
Date: 4/27/2006 3:28:22 PM

8.11.2 TEST UNIT READY OPERATION CODE

change subclause title to
"8.11.2 TEST UNIT READYcommand translation"
RESOLUTION: See EDITOR's comment

Status
rlsheffi None 7/24/2006 12:55:13 PM

Sequence number: 3
Author: DELL[KMarks]
Subject: Highlight
Date: 6/24/2006 9:00:16 AM

8.11.2 TEST UNIT READY OPERATION CODE

1st paragraph
"The SATL shall:"

Comments from page 62 continued on next page

8.11 TEST UNIT READY command

8.11.1 TEST UNIT READY command overview

The TEST UNIT READY command is used to determine whether the device is ready (see table 30).

Table 30 — TEST UNIT READY command CDB fields

Field	Description or reference
OPERATION CODE	8.11.2.
CONTROL	6.4

8.11.2 TEST UNIT READY OPERATION CODE

The SATL shall:

1) If the device was previously stopped through a START STOP UNIT command (see 9.11), then the SATL shall terminate the TEST UNIT READY command with CHECK CONDITION status with the sense key set to NOT READY and the additional sense code of LOGICAL UNIT NOT READY, INITIALIZING COMMAND REQUIRED;
2) If the device is being formatted (see 9.2), then the SATL shall terminate the TEST UNIT READY command with CHECK CONDITION status with the sense key set to NOT READY and the additional sense code set to LOGICAL UNIT NOT READY, FORMAT IN PROGRESS;
3) If the ATA device supports the removable media feature set, then the SATL shall issue a GET MEDIA STATUS command to the attached ATA device. If the device reports an error with the NM bit set to one, then the SATL shall terminate the TEST UNIT READY command with CHECK CONDITION status with the sense key set to NOT READY and the additional sense code of MEDIUM NOT PRESENT;
4) If an ATA command was previously issued to the ATA device and that command completed with an error with the DF bit in the status register set to one, then the SATL shall terminate the TEST UNIT READY command with CHECK CONDITION status with the sense key set to HARDWARE ERROR and the additional sense code of LOGICAL UNIT FAILURE;
5) If none of the previous conditions exist, then the SATL shall issue an ATA CHECK POWER MODE command;
6) If the ATA CHECK POWER MODE command completes with an error the SATL shall terminate the TEST UNIT READY command with CHECK CONDITOIN status with the sense key set to NOT READY, and the additional sense code set to LOGICAL UNIT DOES NOT RESPOND TO SELECTION; and
7) If the ATA CHECK POWER MODE command completes without error, then the SATL shall complete the TEST UNIT READY command with GOOD status.

If any other condition exists that prevents the SATL from issuing commands to the ATA device, the SATL should terminate the command with CHECK CONDITION status with the sense key set to NOT READY with the additional sense code of LOGICAL UNIT NOT READY, CAUSE NOT REPORTABLE.

Reword or remove SATL shall from each of the numbered list entries below.
RESOLUTION: See EDITOR's comment
DISCUSS FLAG

Status
rlsheffi None 7/24/2006 12:55:13 PM

Sequence number: 4
Author: MXO[MEvans]
Subject: Highlight
Date: 6/24/2006 9:01:48 AM

8.11.2 TEST UNIT READY OPERATION CODE, list item 1: change, "If the device was previously stopped through a START STOP UNIT command..." to, "If the device is in the stopped state as the result of receiving a START STOP UNIT command...".
RESOLUTION: See EDITOR's comment
DISCUSS FLAG

Status
rlsheffi None 7/24/2006 12:55:14 PM

Sequence number: 5
Author: DELL[KMarks]
Subject: Highlight
Date: 6/24/2006 9:05:28 AM

8.11.2 TEST UNIT READY OPERATION CODE
2) in 1,2,..7 list
change
"2) If the device is being formatted ("
to
"2) If the device is emulating a formatted operation ("

And would the device be the SATL device? for 1) and 2)?
RESOLUTION: See EDITOR's comment

DISCUSS FLAG

Status
rlsheffi None 7/24/2006 12:55:14 PM

Sequence number: 6
Author: DELL[KMarks]
Subject: Highlight
Date: 6/24/2006 9:38:58 AM

8.11.2 TEST UNIT READY OPERATION CODE
3) in 1,2,..7 list
change
"3) If the ATA device supports the removable media feature set, then the SATL shall issue a GET MEDIA STATUS command to the attached ATA device. If the device reports an error with the NM bit set to one, then the SATL shall terminate the TEST UNIT READY command with CHECK CONDITION status with the sense key set to NOT READY and the additional sense code of MEDIUM NOT PRESENT;"
to
"3) If the ATA device supports the Removable Media feature set (ATA IDENTIFY DEVICE data word 82 bit 2 is set to one), then the SATL shall issue an ATA GET MEDIA STATUS command to the ATA device. If the ATA device completes the command with the NM bit set to one in the Error register, then the SATL shall terminate the TEST UNIT READY command with CHECK CONDITION status with the sense key set to NOT READY and the additional sense code of MEDIUM NOT PRESENT;"
RESOLUTION: See EDITOR's comment
DISCUSS FLAG

Status
rlsheffi None 7/24/2006 12:55:13 PM

Sequence number: 7
Author: HPQ[RElliott]
Date: 6/24/2006 9:40:08 AM

8.11.2

removable media s/b
Removeable Media

Comments from page 62 continued on next page

8.11 TEST UNIT READY command

8.11.1 TEST UNIT READY command overview

The TEST UNIT READY command is used to determine whether the device is ready (see table 30).

Table 30 — TEST UNIT READY command CDB fields

Field	Description or reference
OPERATION CODE	8.11.2.
CONTROL	6.4

8.11.2 TEST UNIT READY OPERATION CODE

The SATL shall:

1) If the device was previously stopped through a START STOP UNIT command (see 9.11), then the SATL shall terminate the TEST UNIT READY command with CHECK CONDITION status with the sense key set to NOT READY and the additional sense code of LOGICAL UNIT NOT READY, INITIALIZING COMMAND REQUIRED;
2) If the device is being formatted (see 9.2), then the SATL shall terminate the TEST UNIT READY command with CHECK CONDITION status with the sense key set to NOT READY and the additional sense code set to LOGICAL UNIT NOT READY, FORMAT IN PROGRESS;
3) If the ATA device supports the removable media feature set, then the SATL shall issue a GET MEDIA STATUS command to the attached ATA device. If the device reports an error with the NM bit set to one, then the SATL shall terminate the TEST UNIT READY command with CHECK CONDITION status with the sense key set to NOT READY and the additional sense code of MEDIUM NOT PRESENT;
4) [8] If an ATA command was previously issued to the ATA device and that command completed with an error with the DF bit in the status register set to one, then the SATL shall terminate the TEST UNIT READY command with CHECK CONDITION status with the sense key set to HARDWARE ERROR and the additional sense code of LOGICAL UNIT FAILURE;
5) [9] If none of the previous conditions exist, then the SATL shall issue an ATA CHECK POWER MODE command;
6) If the ATA CHECK POWER MODE command completes with an error the SATL shall terminate the TEST UNIT READY command with [10] CHECK CONDITOIN status with the sense key set to NOT READY, and the additional sense code set to LOGICAL UNIT DOES NOT RESPOND TO SELECTION; and
7) If the ATA CHECK POWER MODE command completes without error, then the SATL shall complete the TEST UNIT READY command with GOOD status.

If any other condition exists that prevents the SATL from issuing commands to the ATA device, the SATL should [11] minate the command with CHECK CONDITION status with the sense key set to NOT READY with the additional sense code of LOGICAL UNIT NOT READY, CAUSE NOT REPORTABLE.

RESOLUTION:
s/b "Removable Media" See EDITOR's comment
DISCUSS FLAG

Status
rlsheffi None 7/24/2006 12:55:14 PM

Sequence number: 8
Author: MXO[MEvans]
Subject: Highlight
Date: 6/24/2006 1:26:00 PM
8.11.2 TEST UNIT READY OPERATION CODE, list item 1: change, "If an ATA command was previously issued to the ATA device and that command completed with an error with the DF bit in the status register set to one..." to, "If the device completed the most recent ATA command with the DF bit set to one in the Status register...".
RESOLUTION: See EDITOR's comment
DISCUSS FLAG

Status
rlsheffi None 7/24/2006 12:55:13 PM

Sequence number: 9
Author: IBM[GPenokie]
Subject: Comment on Text
Date: 6/24/2006 1:38:34 PM
Item 5
This << If none of the previous conditions exist, then the SATL shall issue an ATA >> should be << If none of the conditions defined in items 1 through 4 do not exist, then the SATL shall issue an ATA >>
RESOLUTION: See EDITOR's comment
DISCUSS FLAG

Status
rlsheffi None 7/24/2006 12:55:14 PM

Sequence number: 10
Author: INTC[RSheffield]
Subject: Highlight
Date: 6/24/2006 1:42:41 PM
s/b
CHECK CONDITION
RESOLUTION: See EDITOR's comment
DISCUSS FLAG

Status
rlsheffi None 7/24/2006 12:55:14 PM

Sequence number: 11
Author: DELL[KMarks]
Subject: Highlight
Date: 6/24/2006 2:03:03 PM
8.11.2 TEST UNIT READY OPERATION CODE
2nd Paragraph, 1st Sentence
change
"terminate the command"
to
"terminate the TEST UNIT READY command"
DISCUSS FLAG
RESOLUTION: See EDITOR's comment

Status
rlsheffi None 7/24/2006 12:55:13 PM

8.12 WRITE BUFFER command

8.12.1 WRITE BUFFER command overview

The WRITE BUFFER command is used with the read buffer command to determine the integrity of the target device's buffer memory and the physical interconnect that connects the target device and the initiator.

Table 31 — WRITE BUFFER command CDB fields

Field	Description or reference
OPERATION CODE	The SATL shall issue either an ATA WRITE BUFFER command or an ATA DOWNLOAD MICROCODE command to the attached ATA device, depending on the setting of MODE.
MODE	8.12.2
BUFFER ID [a]	1 Unspecified (see 3.4.3)
BUFFER OFFSET	Refers to the offset in the buffer to start reading data from. The BUFFER OFFSET should be less than the size of the buffer, otherwise a CHECK CONDITION shall be sent back with sense key set to ILLEGAL REQUEST and additional sense code set to INVALID FIELD IN CDB. This applies to modes 06h and 07h.
PARAMETER LIST LENGTH	Refer to individual sections for the meaning of this term.
CONTROL	6.4
[a] The logical sector buffer in a ATA device shall be used to emulate the WRITE BUFFER command, therefore the size of the buffer is limited to 512 bytes for data buffer and echo buffers.	

8.12.2 MODE field

The MODE field specifies the function to be performed by the SATL. If the MODE is 02h, the SATL shall issue an ATA WRITE BUFFER command to the attached ATA device. If the MODE is 05h, 6h, or 07h, the SATL shall issue a DOWNLOAD MICROCODE command to the attached ATA device as specified in table 32.

Table 32 — MODE field

Code	Translated ATA Opcode
02h (i.e., Write data)	Translated to ATA WRITE BUFFER command (see 8.12.3).
05h (i.e., Download microcode and save)	Translated to the ATA DOWNLOAD MICROCODE command. The features register shall be set to 07h indicating downloaded microcode is saved for immediate and future use (see 8.12.4).
All others [a]	Unspecified (see 3.4.3)
[a] ~~This standard does not define other download microcode modes because ATA devices generally support only modes that save the downloaded code image, and because the SATL has no means to determine the size of the microcode image to support offset modes. Application clients may use the ATA PASS-THROUGH command (see 12.2) to access ATA MICROCODE DOWNLOAD commands not referenced in this standard.~~	

Sequence number: 1
Author: EDITOR[rlsheffi]
Subject: Highlight
Date: 6/24/2006 8:47:26 AM

8.12.1 WRITE BUFFER command overview

Table 22 — WRITE BUFFER command CDB fields

Row: BUFFER ID

DISCUSS FLAG: Change the text in the description or reference column to:

"If the the BUFFER ID field is set to 00h then the SATL shall transfer data to the buffer in the ATA device, download microcode to the ATA device, or emulate the specified WRITE BUFFER function depending on the value set in the MODE field (see 8.12.2). If the the BUFFER ID field is set to a value other than 00h then the translation is unspecified (see 3.4.3), and the SATL shall process the WRITE BUFFER command as defined in SPC-3."

Status
rlsheffi None 7/24/2006 12:55:14 PM

9.2.6 IP bit

If the SATL supports an IP bit value of one and the IP bit is set to one, the SATL shall process the command as follows:

a) If the attached ATA device supports the SCT LBA Segment Access (see SCT) command and the value of the INITIALIZATION PATTERN LENGTH field in the initialization pattern descriptor is four, and the value of the IP MODIFIER field in the initialization pattern descriptor is zero, then the SATL should issue an SCT LBA Segment Access command to the attached ATA device with the Function Code field set to 0001b (i.,e., Repeat Write Pattern), with the Start field and the Count field set to initialize the area of the media accessible by the application client, and with the Pattern field set to the value of the INITIALIZATION PATTERN field from the FORMAT command initialization pattern descriptor; and
b) if the SCT LBA Segment Access command is not used to write the initialization pattern, then the SATL shall write the specified pattern by issuing ATA write commands (see 3.1.18 and 9.1) to the attached ATA device.

If the IP bit is set to zero, then the SATL shall return GOOD status.

NOTE 7 The SATL should reverse the order of the bytes between the Pattern field in the SCT LBA Segment Access command and the value stored in the INITIALIZATION PATTERN field in the FORMAT command initialization pattern descriptor to adjust for the translation from little-endian to big-endian byte ordering.

9.3 READ commands overview

9.3.1 READ commands operation code translation

This subclause applies to the translation of ~~SCSI~~ READ(6), READ(10), READ(12), and READ(16) commands.

The SATL shall issue ATA read commands (see 3.1.15) in accordance with the constraints specified in 9.1 to cause the ATA device to transfer the logical blocks specified in the SCSI read command (see 3.1.64).

1 the SATL returns an error other than an ILLEGAL REQUEST while processing the command the SATL may transfer a vendor-specific amount of data before terminating the command.

9.3.2 READ commands with FUA

If the SATL does not support FUA and the FUA bit is set to one, the SATL shall terminate the READ (10), READ (12) or READ (16) command with CHECK CONDITION status with the sense key set to ILLEGAL REQUEST and the additional sense code set to INVALID FIELD IN CDB.

3 he SATL shall process a SCSI read command with the FUA bit set to one as follows depending on whether or not the attached ATA device supports NCQ:

a) If the attached device supports NCQ (i.e., bit-8 in word 77 of ATA IDENTIFY DEVICE data is set to one) the SATL shall issue a READ FPDMA QUEUED command (see SATA 2.5) with the FUA bit in the Device field set to one;
b) otherwise, the SATL shall,
   1) if the ATA device's write cache is enabled (see ATA/ATAPI-7), issue an ATA verify command (see 3.1.17); and,
   2) issue an ATA read command as specified in 9.3.1.

Page: 69

Sequence number: 1
Author: DELL[KMarks]
Subject: Highlight
Date: 2/16/2006 4:05:19 PM

9.3.1 READ commands operation code translation
3rd Paragraph
change
"If the SATL returns an error other than an ILLEGAL REQUEST while processing the command the SATL may transfer a vendor-specific amount of data before terminating the command."
to
"If the SATL returns a CHECK CONDITION status with a sense key set to a value other than ILLEGAL REQUEST while processing the command, the SATL may transfer a vendor-specific amount of data before terminating the command."

Status
rlsheffi None 7/24/2006 12:55:15 PM

Sequence number: 2
Author: DELL[KMarks]
Subject: Highlight
Date: 2/6/2006 7:30:53 PM

9.3.2 READ commands with FUA
2nd Paragraph, 1st Sentence

"The SATL shall process a SCSI read command with the FUA bit set to one as follows depending on whether or not the attached ATA device supports NCQ:"
to

"The SATL shall process a SCSI read command with the FUA bit set to one as follows:"

Status
rlsheffi None 7/24/2006 12:55:15 PM

Sequence number: 3
Author: MXO[MEvans]
Subject: Highlight
Date: 7/23/2006 12:27:59 PM

9.3.2 READ commands with FUA: change the second paragraph to:

The SATL shall process a SCSI read command with the FUA bit set to one as follows:

a) If the attached ATA device supports NCQ (i.e., bit 8 in word 77 of ATA IDENTIFY DEVICE data is set to one) the SATL shall issue a READ FPDMA QUEUED command (see SATA 2.5) with the FUA bit in the Device field set to one;
b) If the attached ATA device supports the Overlapped feature set and there are outstanding ATA queued commands, then the SATL shall:
1) wait until all ATA queued commands have completed;
2) if the ATA device's write cache is enabled (see ATA/ATAPI-7), issue an ATA verify command (see 3.1.17); and,
3) issue an ATA read command as specified in 9.3.1;
or
c) If the attached ATA device does not support the Overlapped feature set or there are no outstanding ATA queued commands, then the SATL shall:
1) if the ATA device's write cache is enabled (see ATA/ATAPI-7), issue an ATA verify command (see 3.1.17); and,
2) issue an ATA read command as specified in 9.3.1.

DISCUSS proposed resolution: - s/b
"The SATL shall process a SCSI read command with the FUA bit set to one as follows:

a) If the ATA device supports NCQ (i.e., ATA IDENTIFY DEVICE data word 76 bit 8 is set to one) the SATL shall issue a READ FPDMA QUEUED command (see SATA 2.5) with the FUA bit in the Device register set to one;
b) If the ATA device supports the Tagged Command Queuing feature set (see ATA8-ACS) and there are outstanding ATA queued commands, then the SATL shall:
1) wait until all ATA queued commands have completed;
2) if the write cache is enabled (ATA8-ACS) on the ATA device, issue an ATA verify command (see 3.1.17); and,

Comments from page 69 continued on next page

9.2.6 IP bit

If the SATL supports an IP bit value of one and the IP bit is set to one, the SATL shall process the command as follows:

a) If the attached ATA device supports the SCT LBA Segment Access (see SCT) command and the value of the INITIALIZATION PATTERN LENGTH field in the initialization pattern descriptor is four, and the value of the IP MODIFIER field in the initialization pattern descriptor is zero, then the SATL should issue an SCT LBA Segment Access command to the attached ATA device with the Function Code field set to 0001b (i.,e., Repeat Write Pattern), with the Start field and the Count field set to initialize the area of the media accessible by the application client, and with the Pattern field set to the value of the INITIALIZATION PATTERN field from the FORMAT command initialization pattern descriptor; and
b) if the SCT LBA Segment Access command is not used to write the initialization pattern, then the SATL shall write the specified pattern by issuing ATA write commands (see 3.1.18 and 9.1) to the attached ATA device.

If the IP bit is set to zero, then the SATL shall return GOOD status.

NOTE 7 The SATL should reverse the order of the bytes between the Pattern field in the SCT LBA Segment Access command and the value stored in the INITIALIZATION PATTERN field in the FORMAT command initialization pattern descriptor to adjust for the translation from little-endian to big-endian byte ordering.

9.3 READ commands overview

9.3.1 READ commands operation code translation

This subclause applies to the translation of ~~SCSI~~ READ(6), READ(10), READ(12), and READ(16) commands.

The SATL shall issue ATA read commands (see 3.1.15) in accordance with the constraints specified in 9.1 to cause the ATA device to transfer the logical blocks specified in the SCSI read command (see 3.1.64).

If the SATL returns an error other than an ILLEGAL REQUEST while processing the command the SATL may transfer a vendor-specific amount of data before terminating the command.

9.3.2 READ commands with FUA

If the SATL does not support FUA and the FUA bit is set to one, the SATL shall terminate the READ (10), READ (12) or READ (16) command with CHECK CONDITION status with the sense key set to ILLEGAL REQUEST and the additional sense code set to INVALID FIELD IN CDB.

The SATL shall process a SCSI read command with the FUA bit set to one as follows depending on whether or not the attached ATA device supports NCQ:

4) If the attached device supports NCQ (i.e., bit-8 in word 77 of ATA IDENTIFY DEVICE data is set to one) the SATL shall issue a READ FPDMA QUEUED command (see SATA 2.5) with the FUA bit in the Device field set to one;
5)
6) otherwise, the SATL shall,
   1) if the ATA device's write cache is enabled (see ATA/ATAPI-7), issue an ATA verify command (see 3.1.17); and,
   2) issue an ATA read command as specified in 9.3.1.

3) issue an ATA read command as specified in 9.3.1;
or

c) If the ATA device does not support the Tagged Command Queuing feature set or there are no outstanding ATA queued commands, then the SATL shall:

1) if the write cache is enabled on the ATA device, issue an ATA verify command (see 3.1.17); and,
2) issue an ATA read command as specified in 9.3.1."

Status
rlsheffi None 7/24/2006 12:55:14 PM

Sequence number: 4
Author: DELL[KMarks]
Subject: Highlight
Date: 4/28/2006 2:12:36 PM

9.3.2 READ commands with FUA
2nd Paragraph a) in a,b list

"a) If the attached device supports NCQ (i.e., bit-8 in word 77 of ATA IDENTIFY DEVICE data is set to one) the SATL shall issue a READ FPDMA QUEUED command (see SATA 2.5) with the FUA bit in the Device field set to one;"
to
"a) If the ATA device supports NCQ (i.e., ATA IDENTIFY DEVICE data word 76, bit 8 is set to one) the SATL shall issue a READ FPDMA QUEUED command (see SATA 2.5) with the FUA bit in the Device register set to one; or"
RESOLUTION: see MXO comment

Status
rlsheffi None 7/24/2006 12:55:15 PM

Sequence number: 5
Author: ENDL[RWeber]
Date: 4/28/2006 2:13:26 PM

a,b list
There is no conjunction between entries a and b in this list.
RESOLUTION: see MXO comment.

Status
rlsheffi None 7/24/2006 12:55:14 PM

Sequence number: 6
Author: DELL[KMarks]
Subject: Highlight
Date: 4/28/2006 2:13:00 PM

9.3.2 READ commands with FUA
2nd Paragraph b) in a,b list
change
"b) otherwise, the SATL shall,
1) if the ATA device's write cache is enabled (see ATA/ATAPI-7), issue an ATA verify command (see 3.1.17); and
2) issue an ATA read command as specified in 9.3.1."

"b) otherwise, the SATL shall:
1) if the write cache is enabled (see ATA/ATAPI-7) on the ATA device, issue an ATA verify command (see 3.1.17); and
2) issue an ATA read command as specified in 9.3.1."
RESOLUTION: see MXO comment

Status
rlsheffi None 7/24/2006 12:55:13 PM

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3) If the HDA Temp field is equal to 80h the SATL shall set the MOST RECENT TEMPERATURE READING field to FFh; and
4) Otherwise the SATL shall set the MOST RECENT TEMPERATURE READING FIELD to the value in the HDA Temp field.

If the ATA device does not support the SCT Feature Set, then the SATL shall set the MOST RECENT TEMPERATURE READING field to FFh.

10.2.4 Self-Test Results log page

10.2.4.1 Self-Test Results log page overview

The Self-Test Results log page provides the results from the most recent self-tests. Table 73 shows the Self-Test Results log page header fields.

Table 73 — Self-Test Results log page fields

Field	Description or reference
PAGE CODE	Set to 10h. This field value is specific to the Self-Test Results log page.
PAGE LENGTH	See SPC-3

Translations of the fields for the Self-Test Results log parameters for the Self-Test Results log page are shown in Table 74.

Table 74 — Self-Test Results log parameters (part 1 of 2)

Field	Description or reference [1]
PARAMETER CODE	Unspecified (see 3.4.3)
DU	Unspecified (see 3.4.3)
DS	Unspecified (see 3.4.3)
TSD	Unspecified (see 3.4.3)
ETC	Unspecified (see 3.4.3)
TMC	Shall be set to 00b.
LBIN	Unspecified (see 3.4.3)
LP	Unspecified (see 3.4.3)
PARAMETER LENGTH	Unspecified (see 3.4.3)
SELF-TEST CODE	[2] Unspecified (see 3.4.3)
SELF-TEST RESULTS	The SATL shall read the ATA log data as defined in 10.2.4.2. 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 ATA/ATAPI-7). 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.
SELF-TEST NUMBER	Unspecified (see 3.4.3)

Page: 94

Sequence number: 1
Author: DELL[KMarks]
Subject: Note
Date: 5/6/2006 3:39:08 PM

Table 74 — Self-Test Results log parameters (part 1 of 2)

The translation of this log page looks incomplete in terms of mapping the self-test index/descriptor index to the PARAMETER CODE field , and the byte n + 1. This then makes the text in the SELF-TEST RESULTS, TIMESTAMP, and ADDRESS OF FIRST FAILURE translations confusing as there is no indication of which descriptor these values are coming form.

If the PARAMETER CODE is used to indicate the descriptor then with limited word changes, these fields would make sense.

DISCUSS: What text to add/modify to map the self-test index / descriptor index to the PARAMETER CODE field and the "n +1" byte?

Status
rlsheffi None 7/24/2006 12:55:15 PM

Sequence number: 2
Author: DELL[KMarks]
Subject: Highlight
Date: 5/6/2006 3:56:30 PM

Table 74 — Self-Test Results log parameters (part 1 of 2)
Row: SELF TEST CODE

Why is this Unspecified? It appears to me that the first byte of the self-test descriptor entry is the ATA self test that failed. This maps back to the SCSI SELF-TEST CODE using the text in the SEND DIAGNOSTIC command translation, i.e. a one to one mapping...

DISCUSS: "Unspecified" is consistent with what was in proposal 05-245r4, "See SPC-3". What needs to change here?

Status
rlsheffi None 7/24/2006 12:55:14 PM

Table 74 — Self-Test Results log parameters (part 2 of 2)

Field	Description or reference
TIMESTAMP	The SATL shall read the ATA log data as defined in 10.2.4.2. 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. 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 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.
ADDRESS OF FIRST FAILURE	The SATL shall read the ATA log data as defined in 10.2.4.2. 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. 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.
SENSE KEY	10.2.4.3
ADDITIONAL SENSE CODE	10.2.4.3
ADDITIONAL SENSE CODE QUALIFIER	10.2.4.3

10.2.4.2 A method of determining ATA command selection for field translations

To translate the 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:

1) Issue an IDENTIFY DEVICE command to the ATA device;
2) From the returned data the SATL shall determine if the ATA device supports the 48-bit Address feature set from bit 10 of word 83;
3) If the 48-bit Address feature set is supported the SATL shall issue a READ LOG EXT command with the Log address set to 07h (i.e., Extended SMART self-test log) to the ATA device; and
4) If the 48-bit Address feature set is not supported the SATL shall issue a SMART READ LOG command with the Log address set to 06h (i.e., SMART self-test log) to the ATA device.

10.2.4.3 Sense key and additional sense code

The SATL shall determine the sense key and additional sense code from the content of the self-test execution status byte returned from a READ LOG EXT command or SMART READ LOG command issued to the ATA

Page: 95

Sequence number: 1
Author: HPQ[WBellamy]
Subject: Highlight
Date: 5/6/2006 4:07:25 PM

Verbiage is strange here, i. e., "shall set" the xxx field using the values". Shouldn't this be "shall set the xxx field to the values of". I suggest for this field going back to proposal 05-245r4 for better verbiage or building another translation just for these LBA values for this "set / using" process.

DISCUSS: text from 05-245 is as follows:
"1) From the returned data from a READ LOG EXT command for the Extended SMART self-test log the SATL shall select 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 to return to the application client for this field."

Do we need a table within a table to provide the byte-for-byte mapping?

Status
rlsheffi None 7/24/2006 12:55:14 PM

Sequence number: 2
Author: HPQ[WBellamy]
Subject: Highlight
Date: 5/6/2006 4:06:45 PM

Verbiage is strange here, i. e., "shall set" the xxx field using the values". Shouldn't this be "shall set the xxx field to the values of". I suggest for this field going back to proposal 05-245r4 for better verbiage or building another translation just for these LBA values for this "set / using" process.

DISCUSS: the text from 05-245r4 is,
“2) From the returned data from a SMART READ LOG command for the SMART self-test log the SATL shall select 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 to return to the application client for this field.”

Do we need a table within a table to provide the byte-for-byte mapping?

Status
rlsheffi None 7/24/2006 12:55:14 PM

10.3 Vital product data parameters

10.3.1 Vital product data parameters overview

Table 77 provides a summary of the VPD page translations defined in this standard.

Table 77 — Summary of SCSI / ATA VPD page mapping

SCSI VPD page	Reference
Supported VPD Pages (i.e., 00h)	10.3.2
Unit Serial Number (i.e., 80h)	10.3.3
Device Identification (i.e., 83h)	10.3.4
ATA Information VPD page (i.e., 89h)	10.3.5

10.3.2 Supported VPD pages VPD page

Table 78 shows the fields of the Supported VPD pages VPD page.

Table 78 — Supported VPD pages VPD page fields

Field	Description or reference
PERIPHERAL DEVICE TYPE	The PERIPHERAL QUALIFIER field and the PERIPHERAL DEVICE TYPE field shall be set as described in 8.1.2.
PERIPHERAL QUALIFIER	
PAGE CODE	The SATL shall set the field to 00h.
PAGE LENGTH	The SATL shall set this field to indicate the length of the supported VPD page list returned in number of bytes.
SUPPORTED VPD LIST	This list shall contain the page codes of the pages supported by the SATL in ascending order of page codes beginning with page code 00h.

10.3.3 Unit Serial Number VPD page

Table 79 defines the Unit Serial Number VPD page (see SPC-3) returned by a SATL for an ATA device.

Table 79 — Unit Serial Number VPD page for SAT

Bit\Byte	7	6	5	4	3	2	1	0
0	PERIPHERAL QUALIFIER			PERIPHERAL DEVICE TYPE				
1	PAGE CODE (80h)							
2	Reserved							
3	PAGE LENGTH (14h)							
4	PRODUCT SERIAL NUMBER							
23								

The PERIPHERAL QUALIFIER field and the PERIPHERAL DEVICE TYPE field shall be set as described in 8.1.2.

The PAGE CODE field shall be set to 80h.

The PAGE LENGTH field shall be set to 14h.

Page: 97

Sequence number: 1
Author: DELL[KMarks]
Subject: Note
Date: 5/6/2006 4:33:20 PM

Why are the VPD page translation formats different than all the other translations, i.e. shown in Bit/Byte Format, instead of the Field/Description or Reference format?

Change to match format except for the ATA Information VPD.
DISCUSS: is the SAT WG OK with changing the format?

Status
rlsheffi None 7/24/2006 12:55:14 PM

Table 88 — SIGNATURE field

Bit Byte	7	6	5	4	3	2	1	0
0	FIS TYPE (34h)							
1	Reserved	INTERRUPT	Reserved		PM PORT			
2	STATUS							
3	ERROR							
4	LBA LOW							
5	LBA MID							
6	LBA HIGH							
7	DEVICE							
8	LBA LOW EXP							
9	LBA MID EXP							
10	LBA HIGH EXP							
11	Reserved							
12	SECTOR COUNT							
13	SECTOR COUNT EXP							
14	Reserved							
19								

All fields within the SIGNATURE field are defined in ATA/ATAPI-7 V1 and ATA/ATAPI-7 V3.

Table 89 lists common signature values for fields within the SIGNATURE field.

Table 89 — Common signature values (informative)

Field	ATA device	ATAPI device
SECTOR COUNT	01h	01h
LBA LOW	01h	01h
LBA MID/BYTE COUNT LOW	00h	14h
LBA HIGH/BYTE COUNT HIGH	00h	EBh
DEVICE	00h	00h

The COMMAND CODE field contains the command code used to retrieve the data in the IDENTIFY DEVICE or IDENTIFY PACKET DEVICE DATA field (e.g., ECh for IDENTIFY DEVICE (i.e., the ATA device type) or A1h for IDENTIFY PACKET DEVICE (i.e., the ATAPI device type) or 00h for other device types).

The IDENTIFY DEVICE OR IDENTIFY PACKET DEVICE DATA field contains:

a) if the device is an ATA device, the IDENTIFY DEVICE data (see ATA/ATAPI-7 V1). If the IDENTIFY DEVICE command fails, 512 bytes each set to 00h;
b) if the device is an ATAPI device, the IDENTIFY PACKET DEVICE data (see ATA/ATAPI-7 V1). If the IDENTIFY PACKET DEVICE command fails, 512 bytes each set to 00h; or
c) if the device is any other device type, 512 bytes each set to 00h.

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Author: STX[GHoulder]
Subject: Highlight
Date: 5/7/2006 8:54:05 AM
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Table 89
For the device types listed, the signature is normative (not informative). For other device types, say 'unspecified'
DISCUSS: Remove table 89?

Status
rlsheffi None 7/24/2006 12:55:14 PM

Sequence number: 2
Author: IBM[GPenokie]
Subject: Comment on Text
Date: 5/7/2006 8:54:24 AM
table 89
The title should remove the << (informative) >> term. It has little or no meaning or value.
DISCUSS: Remove table 89?

Status
rlsheffi None 7/24/2006 12:55:15 PM

Sequence number: 3
Author: STX[GHoulder]
Subject: Highlight
Date: 5/7/2006 8:54:45 AM
PDF page 105
Table 89
The DEVICE register is not part of the signature (per ATA/ATAPI-7)
DISCUSS: Remove table 89?

Status
rlsheffi None 7/24/2006 12:55:15 PM

13 Translation for ATAPI devices

13.1 Overview

This subclause describes those elements of SCSI / ATA Translation that are specific to ATAPI devices.

13.2 Commands

13.2.1 INQUIRY command

13.2.1.1 INQUIRY command overview

For ATAPI devices, the SATL may support the ATA Information VPD page (see 13.2.1.3) to provide information about the SATL and provide the IDENTIFY PACKET DEVICE data from the ATAPI device.

If the SATL does not support the ATA Information VPD page, it shall pass through all INQUIRY commands and parameter data unaltered to the ATAPI device.

If the SATL supports the ATA Information VPD page, the SATL shall:

a) pass through INQUIRY commands requesting the standard INQUIRY data unaltered;
b) pass through INQUIRY commands requesting VPD pages other than the Supported VPD Pages VPD page and the ATA Information VPD page unaltered;
c) process INQUIRY commands requesting the Supported VPD Pages VPD page (see SPC-3) as described in 13.2.1.2; and
d) process INQUIRY commands requesting the ATA Information VPD page (see 10.3.5) as described in 13.2.1.3.

13.2.1.2 Supported VPD Pages VPD page

If the SATL supports the ATA Information VPD page, the SATL shall pass through an INQUIRY command requesting the Supported VPD Pages VPD page (see SPC-3) to the ATAPI device unaltered.

If the ATAPI device returns CHECK CONDITION status with the sense key set to ILLEGAL REQUEST and the additional sense code set to INVALID FIELD IN CDB, and the field pointer in the sense data points to the EVPD bit or the PAGE CODE field, the SATL shall return GOOD status and return parameter data containing the Supported VPD Pages VPD page with only two supported VPD page codes:

a) 00h (i.e., Supported VPD Pages); and
b) 89h (i.e., ATA Information).

If the ATAPI device returns GOOD status, the SATL shall modify the parameter data containing the Supported VPD Pages VPD page returned by the ATAPI device to add 89h (i.e., the ATA Information VPD page) into the supported VPD page code list.

13.2.1.3 ATA Information VPD page

If the SATL supports the ATA Information VPD page (see 10.3.5) and it receives an INQUIRY command requesting the ATA Information VPD page, the SATL shall process the command (i.e., return parameter data and status) itself.and shall not pass through the INQUIRY command to the ATAPI device.

The SATL shall use the IDENTIFY PACKET DEVICE command (A1h) rather than the IDENTIFY DEVICE command (ECh) to retrieve information for the ATA Information VPD page from the attached ATAPI device.

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Sequence number: 1
Author: STX[GHoulder]
Subject: Note
Date: 5/8/2006 6:45:04 PM
PDF page 120
That this is the final page is not easily determined.
Please either put in a section that says 'this is the end'
or make the page footer say 'page xxx of yyy' so that
it is easy to determine if some pages are missing.

DISCUSS

Status
rlsheffi None 7/24/2006 12:55:14 PM