

X3T10/95- 193R0

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**Membership of X3:**

Here are Lawrence Livermore National Laboratory's comments to the second public review of X3.232:199x, the SCSI-2 Common Access Method Transport and SCSI Interface Module (Revision 11). We consider this to be a "yes" vote with comments.

Comments are organized as follows:

#xxx (?) Comment on y.y.y

where

xxx is the comment number,

? is the type (E: Editorial, T: Technical), and

y.y.y is the referenced section number.

**SPECIFIC COMMENTS**

#001 (E) Comment on list of Tables in Table of Contents

Should Table 18 be listed twice?

Tables 19 and 20 are out of order.

#002 (E) Comment on 1, first paragraph, first sentence

Change "SCSI Small" to "the Small".

#003 (E) Comment on 3.1.1

As defined, "block" seems to be a noun instead of a verb.

Is that the intent?

#004 (E) Comment on 3.1.7

Move the right parenthesis to follow "queue" instead of "freeze".

#005 (E) Comment on 3.1.11

Insert "that" before "depends".

#006 (E) Comment on 3.1

A definition of "path" seems warranted. Having the definition point to clause 9.1.5 seems wise.

#007 (E) Comment on 3.1.14

Change "between" to "among" before "vendors."

#008 (E) Comment on 3

A clause listing mnemonics and what they stand for would be useful.

#009 (E) Comment on 5, second paragraph, second sentence

Delete the sentence, or replace it with one extolling the benefits of providing a common way to provide access to SCSI peripherals.

#010 (T) Comment on 5.1

If the CAM document should say that only one port in a CAM environment can be on a given bus, this clause is one of the best places to say it. Clause 9.1.5 is another good place. Since CAM-3 probably will not have such an assumption or requirement, the rest of the CAM document should minimize dependence on such an assumption.

It seems preferable that CAM make no such statement or assumption.

#011 (E) Comment on 5.1, Figure 1

Consider showing ports on HBAs.

#012 (E) Comment on 5.2, item j)

Change "pass" to "passing".

#013 (E) Comment on 5.3, item e)

Make "driver" plural.

#014 (E) Comment on 5.4, item d)

After "Manage", delete "of".

#015 (E) Comment on 6.2, paragraph under XPT, second sentence

Make "responsibility" plural.

#016 (E) Comment on 6.4, third paragraph, second sentence

What are the officially blessed spelling and pronunciation:  
"A XPT" or "An XPT"?

#017 (E) Comment on 6.4, fifth paragraph, third sentence

Is UNIX still a trademark of AT&T, or did AT&T sell the  
trademark when they sold the rights to UNIX?

#018 (E) Comment on 6.4, sixth paragraph, first sentence

Should "Operating" be included inside the parentheses  
following "LANOS"?

#019 (E) Comment on 6.4, item d) in list of requirements

The current words seem convoluted. Consider: "Allow the  
calling driver or program to interpret sense data returned by  
SCSI devices. "

#020 (E) Comment on 6.4, item g) in list of requirements

Does "determine" mean "learn" or does "determine" mean  
"control". The word "determine" is quite ambiguous here, and  
should be replaced with an unambiguous term.

A global electronic search for other ambiguous uses of  
"determine" may be worth while.

#021 (E) Comment on 7.3.2, first paragraph, last sentence

Insert blanks after "9, " and "10, ".

#022 (E) Comment on 7.3.2, second paragraph, first sentence

Change "using 1 of" to "using one of".

#023 (E) Comment on 7.3.2, paragraph in last bullet

In "of an completed", change "an" to "a".

#024 (E) Comment on 7.4, fourth paragraph

In "Unit may keep", change "may" to "to".

#025 (E) Comment on 7.4.2.1, first paragraph, last sentence

A period is needed after the sentence.

#026 (E) Comment on 7.4.2.2, second paragraph, first sentence

Delete "is" from "driver is shall".

#027 (E) Comment on 7.4.2.3, first paragraph, first sentence

In "a EXECUTE", change "a" to "an".

#028 (E) Comment on 7.4.2.3, first paragraph, second sentence

Delete "is" from "... queue is shall ...".

#029 (E) Comment on 7.4.2.3, fourth paragraph, first sentence

In "When a SIMs Logical Unit's", change "SIMs" to "SIM s" (possessive).

#030 (E) Comment on 7.4.2.3, last paragraph, first sentence

Replace "indicating" with "an indication of".

#031 (T) Comment on 7.5, second paragraph

In step a), "to the reset bus" should be "for the port on the reset bus" or "for the reset port".

In steps a) and b), "for this bus" should be "for this port".

In step c), path\_id should be "port that was reset" or "port attached to bus that was reset".

In step d), "for the bus" should be "for the port".

#032 (E) Comment on 7.5, third paragraph, first bullet

Change "shall ensure that" to "shall check whether".

#033 (T) Comment on 7.5, third paragraph, third bullet

Change "detection" to "detecting".

In step b), "bus" probably should be "port".

#034 (E) Comment on 7.5, last paragraph, first sentence and first bullet

Are "SCSI BUS DEVICE RESET" and "SCSI DEVICE RESET" supposed to be different (only one has "BUS") or supposed to be the same?

#035 (E) Comment on 7.5, last paragraph, first bullet

Append "ly" to the word "successful".

#036 (T) Comment on 7.5, last paragraph

In step a), should "bus" be "path" or "port attached to the bus"?

In step b), should "SIM/HBA for this bus" be "SIM/HBA for this target"? If "target" is not correct, should "bus" be "port"?

In step c), should path\_id be set to "port used to issue the SCSI ... RESET"?

In step d), should "bus" be "path" or "port attached to the bus"?

#037 (E) Comment on 7.6, third paragraph, second sentence

The second sentence might be clearer if replaced by: "For registration with Logical Units, the following Asynchronous Events are possible:".

#038 (E) Comment on 7.6, third and fourth paragraph

For each list of possible events, the last event listed should be ended with a period instead of a semi colon.

#039 (E) Comment on 7.6, fourth paragraph, first sentence

Change "is" to "are" before "the following".

#040 (E) Comment on 7.6, fifth paragraph, last sentence

Delete "a" from "The use of a wildcards".

#041 (E) Comment on 7.6

In the paragraph that starts "The peripheral driver can deregister ... ", the end of the first sentence should be "registered values", so append "ed" to "register".

#042 (E) Comment on 7.6

In the paragraph that starts "The XPT shall be responsible for ensuring ... serial fashion", the last sentence is incomplete. Before "the SIM" insert "in" or "within" or rewrite the sentence to state that the SIM is responsible for serialization.

#043 (E) Comment on 7.7, second paragraph, second sentence

Before "specified", "is" should be "are".

#044 (E) Comment on 7.8, second and third paragraphs

In the first sentence of each, "it's" should be "its" (possessive).

#045 (T) Comment on 7.8

The next-to-last paragraph, which starts with "When the XPT is called it will update ...", should be moved so it occurs as part of the `xpt_bus_register()` function, and before any discussion of `xpt_bus_deregister()`.

Probably in that paragraph "the XPT is called" should be replaced by "xpt\_bus\_register is called" to reduce confusion as to what is called.

Possibly a paragraph should be added to say what `xpt_bus_deregister` shall do when it is called.

#046 (E) Comment on 8.1.6.1, case b), second sentence

The word "it's" should be "its" (possessive).

#047 (T) Comment on 8.1.6.1

In the descriptions of `xpt_init()` and `xpt_action(CCB *)`, the descriptions appear to fail to discuss the values returned when the function returns. Probably the term "CAM Status" should be replaced by "return value".

#048 (T) Comment on 8.1.7

The return values for `sim_init()` and `sim_action(CCB *)` are never described -- or, more likely, they are called CAM Status instead of return values. The document should be clear what is returned from these function calls.

#049 (E) Comment on 9, first paragraph after table 2

The character before "i. e." should be a left parenthesis.

#050 (E) Comment on 9, second paragraph after table 2

In "vary between operating", change "between" to "among".

#051 (E) Comment on 9, paragraph above table 3

Is the first line of this paragraph supposed to be a separate paragraph? If so, insert a blank line.

#052 (T) Comment on 9.1.4, Table 5

The reserved range 1B-33h should be 1B-32h.

#053 (E) Comment on 9.1.4, status 38h

Should "... range of the SCSI bus" be "... range of the SIM/HBA"?

#054 (T) Comment on 9.1.5

If the CAM document should say that only one port in a CAM environment can be on a given bus, this clause is one of the best places to say it. Clause 5.1 is another good place. Since CAM-3 probably will not have such an assumption or requirement, the rest of the CAM document should minimize dependence on such an assumption.

It seems preferable that CAM make no such statement or assumption.

#055 (E) Comment on 9.2.2, 9.2.3, 9.2.4, 9.2.7 and 9.2.8

In many of the bullets listing CAM Status values, "indicates" is followed by an unneeded comma. This occurs 3 times in 9.2.2, 3 times in 9.2.3, 1 time in 9.2.4, 2 times in 9.2.7, and 2 times in 9.2.8.

#056 (T) Comment on 9.2.3, first paragraph, first sentence

In "number of HBAs installed", "HBAs" should be ports. (See 9.1.5.)

Probably there should be text to mention that there can be multiple SIMs, each with multiple HBAs, each with multiple SCSI ports, and that the XPT is responsible for assigning a path ID for each of the ports. Perhaps a pointer to 9.1.5 would suffice.

#057 (T) Comment on 9.2.3, first paragraph below table 8

In the parentheses, "SCSI buses" should be "SCSI ports".

#058 (T) Comment on 9.2.3, second paragraph below table 8

In the second paragraph below table 8, it's not clear how the revision number for a standard would be determined. (Annex C has the value corresponding to revision 11, but is not normative. And the revision number for the standard clearly could change.)

#059 (E) Comment on 9.2.3, last paragraph

In the second bullet, "nolonger" should be two words.

#060 (E) Comment on 9.2.4, first paragraph

The first sentence is awkward since it is hard to figure out what "for the selected Logical Unit" refers to.

#061 (E) Comment on 9.2.4, first paragraph

Start the second sentence with "Determining" rather than "To determine".

#062 (E) Comment on 9.2.4, second paragraph

In the first sentence, change "determine" to "be determined".

#063 (E) Comment on 9.2.4, second paragraph

In each bullet, insert "if the" before "CAM Flag".

In each bullet, insert "is" between "bit" and "set".

In each bullet, replace "places" with "shall place".

In the second bullet, replace "decrements" with "shall decrement".

#064 (E) Comment on 9.2.5 and 9.12.6, first paragraph below table

A sentence (fifth in 9.2.5, third in 9.2.6) begins with "Further more", which should be a single word.

#065 (E) Comment on 9.3.1, fourth paragraph

In "CCB may be a one", change "a" to "in".

#066 (E) Comment on 9.3.4, second paragraph after table 17

In "CCB may be a one", change "a" to "in".

#067 (E) Comment on 10

It would be useful to point to the tables illustrating the CCBs. It would be especially helpful to point to the Execute SCSI I/O table.

#068 (T) Comment on 10.1

Should a description of the Autosense Residual Length field be added? If so, should two's-complement be mentioned (see Annex C)?

#069 (E) Comment on 10.1.2, Table 18, part 1

In the subtable for bits 3 and 2, in the line for bit 3 = 0 and bit 2 = 1, "Cam" should be "CAM". Possibly a global electronic search of the document would find more such cases.



#070 (E) Comment on 10.1.2.1, description of bit 4, second sentence

In "list of addresses and length", make "length" plural.

#071 (E) Comment on 10.1.2.4, description of bit 0, second sentence

Delete the second "to" from "to automatically to".

#072 (E) Comment on 10.1.2.5, description of bit 5

Insert "that" before "the Host Target Mode".

#073 (T) Comment on 10.1.8

Must the message buffer be able to hold more than one message? If so, how are the boundaries between messages specified? If not, consider rewording 10.1.8 to state that multiple messages are impossible or are outside the scope or are vendor unique, or whatever.

#074 (E) Comment on 10.1.9, first sentence

Insert "a" before "buffer".

#075 (E) Comment on 10.2

Should the CAM status "SCSI device not installed" be added to the list of possible status values?

#076 (E) Comment on 10.3, probably the third paragraph

In the last sentence, "CCBs" should be "CCB's" (possessive).

#077 (E) Comment on 10.3, third-from-last paragraph (driver shall)

In the last bullet, change the verb "is was" to "was" or "is".

#078 (E) Comment on 10.3, next-to-last paragraph (driver may)

In the last bullet, "with in" should be one word, "within".

#079 (E) Comment on 10.3, last paragraph (SIM/HBA shall)

In the second bullet, "a" should be inserted before "LINKED" in both places, and "the" should be inserted before the first "CCB".

#080 (E) Comment on 10.3, last paragraph

In the fifth bullet, delete "shall" and place a comma after "completes".

#081 (E) Comment on 10.3, last paragraph

In the sixth bullet, place a comma after "broken", change the verb "callback" to "call back", and insert "driver" after "peripheral".

If the verb "callback" should be split into two words, an electronic global search should help.

#082 (T) Comment on 11, first paragraph, first sentence

After "specified SCSI", "bus" should be "port". (See 9.1.5.)

#083 (E) Comment on 11.1, seventh paragraph, first sentence

Consider changing "once for each command received" to "once when the command is received".

#084 (E) Comment on 11.2

In the list of messages to be handled transparently by the SIM/HBA, two have the parenthetical remark "for specified conditions". Where are the specifications for the conditions?

#085 (E) Comment on 11.2.1

It might be helpful to create three subclauses. Possibilities are 11.2.1.1 (Enabling and Disabling LUNs); 11.2.1.2 (Initializing and Maintaining Target CCBs), 11.2.1.3 (Receiving CDBs for non-enabled LUNs).

If this is done, the seventh and eighth paragraphs after Table 22 (which discuss VU CDBs and disabling LUNs) should be in 11.2.1.1, and the list of CAM Status values should be in 11.2.1.1.

#086 (T) Comment on 11.2.1, first paragraph, first sentence

The end of the sentence, "for the HBA", should probably be "for the SCSI port." (See 9.1.5.)

#087 (E) Comment on 11.2.1, Table 22

If Table 22 will be used to describe lists of IMMEDIATE NOTIFY CCBs, then "TARGET" should be deleted from the title of the table.

In the title, probably "LIST" should be "List" and "TARGET" should be "Target" if it is retained.

#088 (T) Comment on 11.2.1, second paragraph after Table 22

"SCSI bus specified" should be "SCSI port specified". (See 9.1.5.)

#089 (T) Comment on 11.2.1, second paragraph after Table 22

Should this paragraph specify that the driver set the CAM Status value to "Request Completed by target peripheral driver", as is shown in B.1.2?

#090 (E) Comment on 11.2.1, fifth paragraph after Table 22

If the intent of the second bullet is to require that the values of CAM flags in each Target CCB shall be set to the values of the flags in the ENABLE LUN CCB, then the wording should be more clear, perhaps: "CAM flags shall be set to the values of the CAM Flags in the ENABLE LUN CCB".

#091 (T) Comment on 11.2.1

Text should be added to specify whether the SIM/HBA is expected to free Target CCBs when a specific LUN is disabled or whether the driver is responsible for the CCBs after the LUN is disabled. The eighth paragraph following Table 22 (the paragraph that begins "To disable the selection of a specific LUN ...") may be one good place for such text.

#092 (E) Comment on 11.2.2, fourth paragraph

Consider adding a new sentence after the second sentence, perhaps: "Otherwise, the SIM/HBA shall select a CCB with the TARGET CCB Available flag set."

#093 (E) Comment on 11.2.3, fourth paragraph, first sentence

"Data Valid bit" should be "Data Buffer Valid bit", according to Table 18.

#094 (E) Comment on 11.2.3, fourth paragraph, third sentence

Insert "be" between "shall" and "interpreted".

#095 (T) Comment on 11.2.3, fourth paragraph

Should it be an error for the Data Buffer Valid bit to be set and for bits 7 and 6 both to be set to indicate "No data transfer"?

#096 (E) Comment on 11.2.4, first five paragraphs

Each paragraph should end with a period, not a semi colon.

#097 (E) Comment on 11.2.4, first paragraph (ABORT message)

In the first sentence, "ABORT" and "initiator" should each be preceded by "an" rather than "a". In the second bullet, "I/O" should be preceded by "an" rather than "a".

#098 (E) Comment on 11.2.4, second paragraph (BUS DEVICE RESET)

In the first sentence, "initiator" should be preceded by "an" rather than "a".

#099 (T) Comment on 11.2.4, second paragraph (BUS DEVICE RESET)

Assuming that a BUS DEVICE RESET message is directed to a device rather than to a LUN, it seems the first sentence should be rewritten perhaps as follows: "When the SIM/HBA receives a BUS DEVICE RESET message from an initiator, it shall perform the following actions for each phase-cognizant LUN that uses the port over which the message was received:".

#100 (E) Comment on 11.2.4, second paragraph (BUS DEVICE RESET)

The second bullet seems to have two independent ideas.

Probably the second bullet should discuss only the asynchronous event callback.

The material in parentheses should become a separate bullet, with parentheses and "e. g. " deleted.

#101 (T) Comment on 11.2.4, third paragraph (TERMINATE I/O)

The first outermost bullet applies when the SIM/HBA has no EXECUTE TARGET I/O CCBs. The bullet specifies disconnecting (conditionally) and rejecting the next EXECUTE TARGET I/O CCB.

The third outermost bullet seems to discuss an almost identical case, except the SIM/HBA has a CCB that is so close to being finished that its processing should complete normally. It would seem that this bullet should also specify disconnecting (again conditionally) and rejecting the next EXECUTE TARGET I/O CCB, at least if the I/O process still exists after the CCB is completed. Presently it does not do so.

#102 (E) Comment on 11.2.4, third paragraph (TERMINATE I/O)

In the first sentence, "initiator" should be preceded by "an" rather than "a".

In the second outermost bullet, "that" should precede "have a CAM Status".

In the first sub-bullet under the second outermost bullet, insert "is" after "bus" and before "allowed".

#103 (E) Comment on 11.2.4, fourth paragraph (INIT DETECTED ERROR)

In the first sentence, "INITIATOR" and "initiator" should each be preceded by "an" rather than "a".

In the first bullet, "I/O" should be preceded by "an" rather than "a".

In the second outermost bullet, "that" should precede "have a CAM Status".

In the first sub-bullet under the second outermost bullet, insert "is" after "bus" and before "allowed".

#104 (E) Comment on 11.2.4, fifth paragraph (BUS RESET)

The first bullet seems to have two independent ideas.

Probably the first bullet should discuss only the asynchronous event callback.

The material in parentheses should become a separate bullet, with parentheses and "e. g. " deleted.

#105 (E) Comment on 11.2.4, last paragraph, last sentence

Change "drivers" to "driver's" (possessive).

#106 (E) Comment on 11.3.3, first paragraph, fourth sentence

Preceding "DISABLE", "an" should be "a".

#107 (E) Comment on 11.3.3, sixth paragraph, first two sentences

These sentences appear to say the same thing, but differ enough that it's not clear. If they are saying the same thing, please delete one of them.

#108 (E) Comment on 11.3.3.1.1

In this clause (in contrast to 11.3.3.1.2, 11.3.3.1.3.x, 11.3.3.1.4, and 11.3.3.1.5) most of the steps begin with "The SIM/HBA shall ...". If 11.3.3.1.1 is to keep its current style, then step A) should also start with "The SIM/HBA shall ..." and the text before step A) should end with a period instead of a semi colon.

Note: It would probably be better if clauses 11.3.3.1.2 through 11.3.3.1.5 were more like 11.3.3.1.1 in this respect. Several of the steps are complex enough that lists of complete sentences are more manageable than sentences that contain entire lists. (The comments on those clauses are written assuming the later clauses will \*not\* be made like 11.3.3.1.1, however.)

#109 (E) Comment on 11.3.3.1.1, step A)

Probably "pathid" should be "path ID".

#110 (T) Comment on various including 11.3.3.1.1, step A)

Taking into account the possibility of multiple ports on the same bus, the path ID should be set to identify the port, rather than the bus. Consider replacing "the bus number of this bus" with something like "the specifier of the SCSI port".

Whatever is done should be done also in 11.3.3.1.2.1 B); 11.3.3.1.3.2 C); 11.3.3.1.3.3 B); 11.3.3.1.3.5 D); and 11.3.3.1.4 A).

#111 (T) Comment on 11.3.3.1.1, step A)

If reasonable, a global check of the document should be made to look for other places where a path ID is said to identify a bus. (Clause 9.1.5 is assumed to be correct.) If CAM expects only one port of a CAM environment model (Figure 1) is on a particular bus, that should be stated, preferably only once. That minimizes future changes needed in CAM if later versions allow for multiple ports on the same bus or same SCSI domain.

#112 (E) Comment on various including 11.3.3.1.1, step E)

Before "unique," change "an" to "a". Change "CCBs" to "CCB's" since it is possessive.

Make similar changes in 11.3.3.1.2.1 D), 11.3.3.1.3.2 F), 11.3.3.1.3.3 E), 11.3.3.1.3.5 E), 11.3.3.1.4 C), and 11.3.3.1.5 C).

#113 (E) Comment on various including 11.3.3.1.1, step F)

Consider changing the verb "callback" (one word) to "call back" (two words).

Before "IMMEDIATE," the word "available" should be deleted.

Make similar changes in 11.3.3.1.2.1 G), 11.3.3.1.3.2 H), 11.3.3.1.3.3 G), 11.3.3.1.4 D), and 11.3.3.1.5 F).

#114 (E) Comment on 11.3.3.1.1, next to last paragraph

Before "NOTIFY," "an" should be "a".

#115 (E) Comment on 11.3.3.1.2, first paragraph

For clarity, append "via the IMMEDIATE NOTIFY CCB" at the end of the sentence.

#116 (E) Comment on various including 11.3.3.1.2.1, step G)

Consider deleting "The SIM/HBA shall" from the beginning of each of the first two sentences and capitalizing the following word.

Make similar changes in 11.3.3.1.3.2 H), 11.3.3.1.3.3 G), 11.3.3.1.4 D), and the one sentence in 11.3.3.1.5 F).

#117 (T) Comment on various including 11.3.3.1.2.1

Consider adding text at the end of the clause to specify what the Host Target Mode peripheral driver shall do to complete processing.

Consider similarly adding text at the end of 11.3.3.1.3.2, 11.3.3.1.3.3, and 11.3.3.1.4 (probably nothing to be done in this last case).

#118 (E) Comment on 11.3.3.1.3.2, steps F) and G)

Consider deleting "The SIM/HBA shall" from the beginning of the first sentence and capitalizing the following word.

#119 (E) Comment on 11.3.3.1.3.2, step G), second sentence

Delete "is" from before "found". Change "CCBs" to "CCB's" (possessive).

#120 (E) Comment on 11.3.3.1.3.3, step E)

Consider deleting "The SIM/HBA shall" from the beginning of the first sentence and capitalizing the following word.

#121 (E) Comment on 11.3.3.1.3.5, step A)

Consider deleting "the SIM/HBA shall" from the first sentence.

#122 (E) Comment on 11.3.3.1.3.5, step E)

Consider deleting "The SIM/HBA shall" from the beginning of the first sentence and capitalizing the following word.

#123 (E) Comment on 11.3.3.1.3.5, step H)

The first sentence should end with a period, not with a comma (not sure if I have a dirty copy).

#124 (E) Comment on 11.3.3.1.4, step C)

Consider deleting "The SIM/HBA shall" from the beginning of the first sentence and capitalizing the following word.

#125 (E) Comment on 11.3.3.1.4, step E)

Delete the second instance of "events".

#126 (T) Comment on 11.3.3.1.5, step A)

The words "the bus number of this HBA" are inappropriate, since an HBA can have multiple ports, and each port would have its own path ID. There is a possible complication if a LUN was used with more than one port on the failed HBA. If a LUN were used with only one port, then replacement text might be "the specifier of the SCSI port used with this LUN."

#127 (E) Comment on 11.3.3.1.5, step C)

Consider deleting "The SIM/HBA shall" from the beginning of the first sentence and capitalizing the following word.

#128 (T) Comment on 11.3.4, first paragraph after Table 24

The first paragraph discusses possible CAM Status values when a driver passes IMMEDIATE NOTIFY CCBs to a SIM/HBA. Does the document specify any circumstance when a driver passes such CCBs to a SIM/HBA other than for the purpose of providing or adding to a list of such CCBs? If there is no other circumstance, why would a driver provide any of those status values?

Probably this paragraph should be deleted or else text added somewhere to explain a circumstance where passage of such CCBs with such status values makes sense.

#129 (T) Comment on 11.3.5, second paragraph after Table 25

The paragraph discusses possible CAM Status values for a NOTIFY ACK CCB passed from the SIM/HBA to the driver. Does the document specify any circumstance where a NOTIFY ACK is passed from SIM/HBA to driver? If not, either delete this paragraph or add text somewhere explaining the circumstances.

#130 (T) Comment on 11.3.5, second paragraph after Table 25

The paragraph discusses possible CAM Status values for a NOTIFY ACK CCB passed from the SIM/HBA to the driver but does not list any possible values. If the paragraph is not deleted, values should be listed.

#131 (E) Comment on 11.3.5, last paragraph

In "is delivered buy", "is" should be "are" and "buy" should be "by".

#132 (E) Comment on 11.3.6, Step D) 4) a) for drivers



Change "Length, shall" to "Length. These fields shall" to be consistent with step D) 5) a).

#133 (E) Comment on 11.3.6, step D) 5) e) for drivers

The first sentence ends with two periods. Delete the extra.

#134 (E) Comment on 11.3.6, step D) 6) for drivers

In the last sentence, change "is greater" to "larger".

#135 (E) Comment on 11.3.6, paragraph for SIM/HBA

In the paragraph that starts "When the SIM/HBA receives ...", insert "a" after "receives".

#136 (E) Comment on 11.3.7

For the CAM status value "Cannot Provide Requested Capability," for reason C) the text is not indented consistently with A) and B).

#137 (T) Comment on 11.3.7

The descriptions of the fields "Pointer to Target CCB list" and "Pointer to Immediate Notify CCB list" both fail to describe the format of a list. A pointer to Table 22 is nearly sufficient. The title of Table 22 appears inappropriate for a list of Notify CCBs. Perhaps the title of Table 22 should be simply "CCB List".

#138 (T) Comment on 11.3.8.2, step A)

Change "not set" to "set" following "If the disconnect privilege bit is". (Currently step A is inconsistent with text in 11.2.2 on page 55 and 11.2.4 on page 58).

#139 (E) Comment on 11.3.8.2, step A)

In the note, clause 11.3.3 seems to be a poor cross-reference. Clauses 11.2.2 and 11.2.4 seem to have clearer text.

The solution is probably to put clear text into 11.3.3 or some other place and have the note reference the clear text.

#140 (E) Comment on 11.3.8.2, step F)

The first sentence of this step seems to specify the same action that step A) would already have performed. Should this sentence be deleted? Should step A) be deleted?

#141 (T) Comment on 11.3.8.2, step G)

"CDB completion" should be "CDB received".

## #142 (T) Comment on 11.3.8.3

In the title of this clause and in the first sentence, "CDB completion" should be "CDB received" in both places. In the title, capitalize "Received".

## #143 (E) Comment on 11.3.8.3

In step A), it may be helpful to spell out how to fill in some of the fields, particularly the callback completion function. Perhaps after "the callback completion function" add (which shall be the Host Target Mode peripheral driver's Continue Target I/O callback completion function)".

## #144 (T) Comment on 11.3.8.3

After step A), consider inserting text to say that, whether the Accept Target I/O CCB is re-used or not, the SIM/HBA does not use it again until it is reissued by the driver.

## #145 (E) Comment on 11.3.8.4, step G) 2)

The sentence should end with one period, not two.

## #146 (E) Comment on 11.3.8.4, step G) 4)

After "the CCB", change "has" to "have".

## #147 (T) Comment on 11.3.8.6

In step B) for command reception errors, the words "in incoming the CDB" do not make sense. Probably the two middle words were transposed.

Even with that correction, it is not clear from the text whether these words are intended to cover the cases of a CDB length error or of an unsupported command Group code. If both of these cases are intended to be covered, then perhaps the words "If the condition was an error in incoming the CDB" should all be simply deleted, since this set of steps already assumes some kind of error in the CDB or its reception.

## #148 (E) Comment on 11.3.8.6

In the paragraph that starts "If the SIM/HBA detects Data phase, ...", delete "or" before "Message Phase" and delete the comma that follows "errors".

## #149 (E) Comment on 11.3.8.6

There are two paragraphs that begin "The Host Target Mode peripheral driver shall be ...". In each of these, insert "for" before "the creation" and insert "of the" after "preservation".

**#150 (E) Comment on 11. 3. 8. 7**

In the second bullet under "initial connection," change "messages" to "message" (singular) and change "has" to "have" (plural).

**#151 (T) Comment on 11. 3. 9 and 11. 3. 10, Tables 27 and 28**

In each table, the autosense residual length field should be "1", not "2".

**#152 (E) Comment on 11. 3. 11, step A) for a driver**

Delete the comma.

**#153 (E) Comment on 11. 3. 11, step D) for a driver**

Inside the parentheses, change "if" to "of".

**#154 (T) Comment on 11. 3. 11, step C) for a SIM**

Either in this step or in a new step, state that the ENABLE LUN CCB shall be returned with a CAM Status of Request Completed without Error.

**#155 (E) Comment on 11. 3. 12**

Clause 11. 3. 2. 1 step A) 6) talks about "registered" LUNs whereas clause 11. 3. 2. 2 step A) 6) talks about "enabled" LUNs. The same word should be used in both places. Probably "enabled" is better.

**#156 (E) Comment on 11. 3. 12. 2**

In step A) 1) b) "SIM" should be "SIM/HBA". (Like in 11. 3. 2. 1.)

**#157 (E) Comment on 11. 3. 12. 2**

In step A) 5) change "an" to "a" before "NOTIFY". (Like in 11. 3. 2. 1.)

**#158 (E) Comment on 11. 3. 12. 2**

In step A) 6), insert "be" into "shall cleared". (Like in 11. 3. 2. 1.)

**#159 (E) Comment on 11. 3. 13, last paragraph**

Case C should be "All other commands" (plural).

**#160 (T) Comment on 12**

It is unclear how engines are told to process data. The last paragraph, which talks about the destination data length, destination data maximum length, and source residual length, implies that EXECUTE ENGINE CCBs are used. By contrast, the second and third paragraphs imply that data is first submitted by entirely unspecified means, only after which the EXECUTE ENGINE REQUEST CCB is used for actual transmission.

However, if EXECUTE ENGINE CCBs can be used both to submit data to an engine and also to tell the SIM/HBA to send processed data, there should be a way to specify which of these uses is intended.

The CAM document should be more explicit either on how EXECUTE ENGINE CCBs are filled in for the two different purposes, or else on the fact that the document describes only one of these purposes.

#161 (T) Comment on 12.1, Table 29

The table should specify the size of the CCB Length as "2".

#162 (E) Comment on 12 and 12.2

Clause 12 mentions "EXECUTE ENGINE REQUEST CCB" twice. Clause 12.2 (third paragraph) mentions "execute engine CCB" once. Table 30 is headed "EXECUTE ENGINE CCB".

These should be consistent as to whether "request" is present or not.

These should be usually consistent regarding whether all upper case, all lower case, or first letter upper case should be used.

#163 (E) Comment on Annex A

The title should start "Annex", not "ANNEX".

#164 (E) Comment on Annex B, first sentence

Change clause "17" to "11".

#165 (T) Comment on Annex B.1.1 and B.1.2

Clause B.1.2 (two times out of three) and B.1.1 (zero times out of one) shows the driver setting targetCCB.camStatus. For consistency, either delete the two or add two more.

#166 (E) Comment on Annex B.1.1

The first assignment should be to "target1CCB" rather than "targetCCB1", for consistency with the rest of B.1.1 and B.1.2.

#167 (E) Comment on Annex B. 1. 1

Following the note, "3nable" should be corrected.

#168 (E) Comment on Annex B. 1. 1 and B. 1. 2

For the third from last statement in each of these clauses, "enableCb" should be "enableCCB".

#169 (E) Comment on Annex B. 1. 2

In the assignment immediately above the Note, "[n]" should be "[n-1]".

#170 (T) Comment on Annex B. 1. 3

If camStatus should be set in B. 1. 1 and B. 1. 2, probably it should be set in B. 1. 3.

#171 (E) Comment on Annex C, second sentence

The sentence, which starts with "The contents ...", should be deleted or updated for a real standard.

#172 (T) Comment on Annex C

There appear to be no definitions for the IMMEDIATE NOTIFY CCB and the NOTIFY ACKNOWLEDGE CCB.

#173 (T) Comment on Annex C

The definition of structure ccb\_en\_lun lacks the pointer and count for the IMMEDIATE NOTIFY CCBs and the SIM private area.

#174 (E) Comment on Annex C

The Defines for the CAM Flags field in the CCB header appear to be specific to one endian vs. the other. Consider changing the definitions to be a byte each rather than 32 bits, or consider adding a comment that these definitions may have to change for some architectures.

#175 (T) Comment on Annex C

The define for the CAM Flag with value 0x00010000 (perhaps CAM\_SG\_List\_Phys) is missing. Consider adding it.

#176 (E) Comment on Annex C

The last two defines belong with the Phase cognizant mode flags and should not be separated. Consider moving them.

#177 (E) Comment on Annex C

In the comments of the last three defines for asynch callback CCB fields, "A" should be "An". For example, "A unsolicited" should be "An unsolicited".

#178 (E) Comment on Annex C

In the third define for engine inquiry, "lossly" should be corrected.

#179 (T) Comment on Annex C

The defines for engine inquiry algorithms all have value 0x00. The last three should be corrected to 0x01, 0x02, and 0x03 respectively.

#180 (E) Comment on Annex C

If the list of CCB definitions changes (e.g., add IMMEDIATE NOTIFY or NOTIFY ACK), the definition of `ccb_size_union` should change to match.

GENERAL COMMENTS

General comments are those that are not easily limited to a single clause.

#181 (E) Alignment of clause titles

In the Table of Contents, most clause numbers appear to be followed by two blanks but some are followed by one. Clause numbers apparently followed by a single blank are 1, 2, 4, 5.2, 6, 6.3, 6.4, 7, 7.4.1, 7.4.2.1, 7.5, 8.2.1 through 8.2.5, 9.2.1, 9.2.6, 10.1, 10.1.2.5, 10.1.7, 10.1.20, and all of clause 11 except for 11.3.3.1.3.4 and clause 11 itself. Number 10.2 appears to be followed by 3 blanks. The clause headings appear to have the same number of blanks where they appear in the body of the document. It seems preferable to use the same number of blanks consistently.

#182 (E) Alignment of clause titles

There are no clauses B.2 or 11.3.3.1.2.2, so there should not be clauses numbered B.1 or 11.3.3.1.2.1.

#183 (E) Comment on word usage

In general, "shall be responsible for <verb>ing" can be replaced with "shall <verb>".

#184 (E) "NULL" vs. "zero" for pointers

In the third and second from last paragraphs of 11.3.6 (steps E) and F) that a SIM/HBA performs upon receipt of a Host Target Mode ENABLE LUN CCB), usually a pointer is checked to see

if it is non NULL. However, in the first line of step E), "non zero" is used instead.

In 11.3.7, when the pointer to Target CCB list field is described, for a disable LUN request this field shall be "zero".

If it makes a difference whether NULL or zero is used for pointers, probably the document should be electronically scanned to check for cases where "zero" or "NULL" is used incorrectly.

#185 (E) Formatting and punctuation

There were instances, not noted above, of unneeded or missing commas, of extra blanks, of missing blank lines, and of extra blank lines.

#186 (E) Comma-delimited lists

Sometimes the document has lists such as "A, B and C" with no comma after B. An example is in 3.1.14 Other times, there is a comma after "B", for example the end of the first paragraph in 7.3.2. Consistency would be desirable.

END OF COMMENTS