Accredited Standards Committee
X3, Information Processing Systems

Doc: X3T10.1/95a224R1
Date: December 3, 1995
Project: X3T10.1/0989D
Ref Doc.: SSA-TL1 rev 8
Reply to: John Scheible

To: X3T10.1 Membership
From: John Scheible

Subject: Response to comments on SSA-TL1 rev 8 by Symbios

BACKGROUND

This proposal documents the response to a set of Symbios comments coordinated by Greg Kapraun.

Symbios suggests: "This is all the comments Symbios has up through Section 11. Since we are more concerned with the Hardware portions of this standard that is what we have concentrated on. Given the substantial number of items which we found we believe it would be in the best interest of SSA and the Standard if Companies with experience in implementation of the Software would do a thorough pass on the rest of this document. We do believe that the latter sections have had more attention to them in the past 6 months or so and it is expected that there are fewer issues with the document related to these areas."

PROPOSAL

This proposal is broken into three parts, Rejected, Needs Discussion, and Editorial. Editorial comments will automatically go into SSA-TL1 rev 8a.

REJECT

The main issues in the rejected are consist of removing Wrap as a mode and the handling of Reserved fields in the CONTROL field. The editor is unwilling to remove Wrap as a mode based on prior agreements of the Committee, and I believe new wording sufficiently explains the reserved frame type and reset type handling.

1) Section 4.2, paragraph 10: Ignored is not defined anywhere, say Reserved
   REJECT: See 10.2.7 for discussion of ignored fields.
2) Section 6.2.9 end of first paragraph - should the SSA-TL1 be more generic to include TL2, TL3 etc. (REJECT: No since we cannot edict what TL2 or TL3 does. We state SSA-PH in TL1 when we mean either PH1 or PH2 so that we do not have to change the spec when PH2 comes out.).
3) Section 9.1.5: Paragraph 7 should end in a colon not a period.
   REJECT: It the list contains entire sentences, it ends in a period. If the list is partial sentences, then the paragraph ends in a colon, and the list becomes one long sentence (each item ends in a semicolon except the last which begins with an and, and ends with a period).
4) Section 9.1.10 Indicate a recommended size for the queue, maybe with an Implementer's note. i.e. Space needs to be available for 64 items in the queue.
   REJECT: The size is specified, one entry per port on the node, a dual port node has two entries.
5) Some of the next changes are due to changing Wrap from a mode to just Wrap
   Section 9.1.4 Change three totwo modes
   Change 9.1.4.3 to 9.1.5 and increment other ones. The heading should be Wrap. Throughout all the description change Wrap mode to just Wrap (and the rest of the document). Change 1st sentence to: ...transmitter outputof a port is internally connected to the receiver inputof the same port.
   Paragraph 3, 2nd sentence the Inactive should change to Disabled. Add reference (see 9.3) after Beginning Communications process
   REJECT: This was discussed and rejected previously. It is too late to put such a far reaching change in SSA-TL1.

6) Section 10.1.1.2 Delete word mode after Wrap.
REJECT: The Wrap mode to Wrap not a mode was rejected.

7) Section 10.1.1.9
Item b) issues: There is an issue in Table 9 (Section 7.1.2) that you cannot ever use 10b since you do not know where to store it or said another way, the standard has not indicated what storage this frame would use if it were ever received. Therefore this is the only frame reject case for a CONTROL field check and Table 9 should indicate that this value is INVALID not RESERVED. The rest of the CONTROL field checks should be ignored in any future devices and handled under the new RESERVED handling procedure.
REJECT: It should stay Reserved, and not be used in TL1 (TL2 may define it). Since you decode the Link Reset and handle it differently from Total or Absolute Reset, can't you use no storage for the Reserved RESET TYPE frame?

8) Section 10.2.7 RESERVED handling procedure should go here!
The whole idea that needs to be in this document is that if it is reserved then it is ignored.
If the RESERVED really needs to be checked then don't reserve them say they are defined as zero in SSA-TL1 document.
REJECT: 10.2 is SMS handling, and I believe we have reserved handling covered in the various sections. To repeat the information in one place creates the same requirements in two places which is to be avoided.

9) Section 9.5.5: Suggest that this be moved to the beginning of 9.5 hence make it as follows with the other changes we suggest:
9.5.1 Power-on Reset
When a node invokes a Power-on Reset it shall initialize the SSA-TL1 functions as follows:
    1) All ports shall enter Wrap.
    2) The node performs its POST.
REJECT: I agree, except that Power On Reset will remain at the end since the resets are all supersets and reference each other.

NEEDS DISCUSSION

The main areas that need discussion include (in summary):

a) Making bits 7-4 of the control byte ignored rather than reserved (see 1, 2, 3, 9).
b) Changes to be verified (see 4,5)
c) Remove the Inactive state (see 6)
d) Remove Local Reset and add it to the Disable State. The reasoning is that you cannot test a Local Reset and it is only used in reference to the Disabled state (see 7).
e) Does this ever happen (see 8)
f) Naming changes to Web Reset (see 10)

The items for discussion include the following, ands are included in rev 8a (subject to removal).

1) Section 4.2 (beating a dead horse) The hardware and firmware should consider reserved fields as "don't cares" (i.e. AND the read data in reserved fields with 0). Our hardware does this checking now so we don't want to change it, but why have it in the standard? The real issue here is that the hardware provided by IBM for checking control fields automatically does a frame reject if the RESERVED bits are not zero (on non cut-through frames). We have hosed ourselves from ever being able to use bits 7-4 in the control field. Do we really want to do this? In connection with this in section 7.1 should these bits be reserved, or should they just be defined as 0? The justification for this is that the TL version supported already covers having these bits set to something else. The argument is that for TL1 these bits will always cause a frame reject if they are anything but zero. In TL2 we may decide that bit 7 always has a value of 1. Symbios would like to see TL1 remove the frame reject condition in section 10.1.1.9 item b). This restriction should not be in this standard. This will break existing hardware, but is preferable to living with this restriction and never being able to use these control bits in the future.
PROPOSAL: How does a TL2 device with bit 7 of the control byte defined do a Link Reset to a TL1

node (he doesn't know its TL1. Make bits 7-4 of the control field ignored with Implementer's note on some older devices create frame reject, but new designs should ignore.

2) Section 7.1.1 The reserved FRAME TYPE of 01b must be treated by TL1 compliant devices as an application frame, in order for it to remain flexible for future standardization. (ACTION: No changes except editorial clarifications, but current implementations treat the reserved frame type as a FRAME REJECT case at the destination node, and an Application frame for reasons of cut through (discarded in Privileged mode, and increments the frame sequence number).

3) Section 7.1.2 and 7.1.3 This again brings up a can of worms with reserved bits. In order to properly handle this frame then in Table 9 the 10b field should not be reserved, it needs to be invalid. It has to be rejected because we don't know what else to do with it. Should it be forwarded or a reset be done? This can never be valid in TL1. It could be defined in later TL documents, but TL1 devices will always reject this frame.
ACTION: No changes except editorial clarifications, but current implementations treat the reserved RETURN TYPE field will be treated as FRAME REJECT at the destination node and treated as a valid Control frame for the cut through nodes.

4) Section 7.4.3. Second sentence change should be to is: In the absence of errors the remainder is C(x) = Need to add words to this section that if the checking fails that the Link ERP process is invoked. i.e.: A check of the CRC remainder which is not C704DD7Bh invokes the Link ERP process (see 10.1) (use your own words if you want)
(ACTION: Accept)

5) Section 8.4.1 In item 2) we see no reason for requiring the port to set the WAITING FOR ACK flag 2 character periods after the trailing FLAG. The SIC and our device do not implement it this way. Remove "2 character periods".
In Figure 11 if the issue with item 2) is changed then the 2Cp timing parameter needs to be modified.
ACTION: Agreed if true.

6) Section 9.1.3.1 REMOVE THIS FROM THE ENTIRE STANDARD!!! Inactive state: This state does not conform to the hardware. The Figure 17 is valid for the state machines which implement the states of the part. We understand that when you add modes and operational there is confusion, but this figure is still correct as far as what its transitions are for states. The diagram should return to what was originally in the UIG document.

7) Section 9.1.3.2 Add back in entered conditions due to removal of Inactive state. In the first sentence it is wrong that the port is made Operational when this state is entered. In section 9.3 it states that operational is not set until the port become Ready. The second sentence is completely wrong. Please read the original description in the UIG document. Add reference to last paragraph to (see 9.1.9) Add into this section after the last paragraph the Disabled state information from Section 4.6.5 (except number 6) in the UIG document (we were using Revision 0).
ACTION: First sentence does not say that the port is made operational in the Disabled state. The second section is not wrong, as Local Reset was intended to define the way the port is initialized by the Disabled state. However, I agree that Local Reset cannot be tested or caused to happen, so I will move the appropriate reset conditions into the Disabled state, then remove Local Reset and indicate that Total Reset set the Disabled state rather than issuing a Local Reset and then setting the Disabled state.

8) Section 9.1.3.5 Change item b) send a Link Reset frame; Add item d) Abort a Link Reset frame
ACTION: Agree, but why would you ever abort a Link Reset frame? (accepted because you could).

9) Section 9.1.4.2 Change Application toother The 3rd sentence should be deleted.
ACTION: Change first sentence to "... and discard Application or Reserved frames (frames with a FRAME TYPE field of RESERVED). Delete the third sentence as it is covered elsewhere.

10) Section 9.5.6 In 1st Item 2) change as follows: 2) The Master places each of its ports in the Disabled State and clears the OPERATIONAL FLAG. The Master then executes its Beginning Communication process (see 9.3)
We think that a better name for Previous port would be Reference port
Not clear what happens when the Master resets another Configutor node
Is 5ms enough time on these time-outs given we will have about 1ms to speed negotiate.
Second list:

In item 1) change to: The Master chooses an Unselected port on the Base node as the new Previous port and marks it as selected.
In Item 4) of second list Unique ID field should be in small caps. Unique ID is not consistent through the whole document as far as small caps is concerned.
In item 9) end of sentence add: ...is complete and selects a new Base node if one exists.
ACTION: Agree, except that previous port is well defined.

EDITORIAL

The following items are accepted as editorial and are included in rev 8a.

1) Global: Change receive a SMS to receivean SMS (Section 3.1.2).
2) Global: Suggestion to put abbreviations first, since they get used in the definitions. i.e. SMS
   ACTION: Yes, but will need to check all places conditionally.
3) Section 3.1.6 don't like definition.
   ACTION: "A process by which a frame not addressed to a node is fed out the output lines of another port as it streams in the input lines of the receiving port."
4) Section 3.1.8 a particular frame is not a good term
   ACTION: Change to "The node to which a frame is addressed".
5) Section 3.1.xx: Dual-port node has not been defined.
6) Section 3.1.17: Strike last sentence, this should be in body of document not here
7) Section 3.1.25 SMS - strike the second sentence
   ACTION: Agree and data field is small caps.
8) Section 3.1.26 change to: spatial reuse: The capability by which different links in a Web can be transmitting different frames simultaneously.
   ACTION: A single data stream will meet this definition since several contiguous frames will be on different links. Change it to "The property which allows multiple sets of transfers between different source and destination pairs to be on the Web at any given time."
9) Section 3.1.23: Change to: A pair of ACK or RR characters that is used to control the flow of frames between ports.
10) Section 3.1.27: Extreme nodes and either end is redundant, remove extreme or say at the extreme ends
11) Section 3.1.29 Web: does dedicated connection need to be there?, should they all be i.e.? A collection of SSA nodes that are connected by links, (i.e. a loop, a string, or other complex configurations) Note: if a switch is used, then does it need to be defined first?
    ACTION: The concept of addressed needs to be there (i.e. a string of 500 nodes is not a single Web). Change to "A collection of SSA nodes that can address each other and are connected by links, (i.e., a loop, a string, or complex configurations)."
12) Section 4.1 Why include the two alternative upper level protocols in the definition of SSA? The second paragraph should only refer to the TL and the PH which the TL uses. Recommendation: delete item c) and remove reference to upper level protocol in second paragraph.
    ACTION: Remove sections 4 and 4.1 as this is covered in 1.2 (SSA Family of standards). Make 4.2 into 4. Change the Introduction section to match.
13) Note that all reserved fields shall retain their values on cut-through. (This should be in section 4.2). In paragraph 9 the last sentence should start: Adestination node that receives... Either force the control bits 7-4 to zero and we check them and do a frame reject as in 10.1.1.9, or mark them as reserved and we don't check them.
    ACTION: Replace the last sentence of paragraph 9 of 4.2 with ". Reserved bits, fields, bytes or reserved field values shall be ignored when cutting through a frame. A destination node that receives a reserved field value in the FRAME TYPE or RESET TYPE fields of the CONTROL field shall generate a FRAME REJECT ERROR as defined inError! Reference source not found.. A destination node that received an SMS with a reserved bit, field, or byte that is not zero, or receives a reserved code value shall respond as defined inError! Reference source not found.."
14) Section 5
    b) 1st sentence -at most one nodein the Web
    c) ...more than two ports
15) Last sentence in before Figure 2 should indicate the Figure 2 shows a dual-port node only, or a figure needs to be added showing a switch. Note in the UIG95 document it indicate the figure is a dual-port node. Please change like UIG.
16) Section 5.1: Ditto on the extreme wording

17) Section 5.3 almost unlimited, is not a good term for a standard, use 516,225 or you could say over 500 Thousand. either is better than almost unlimited. (This assumes the restriction that all nodes can talk to all other nodes in the Web, if you don't want that then it is much much bigger :-)
ACTION: Change first sentence of 5.3 to "Switches allow a number of strings to be connected to achieve over ¼ billion nodes to intercommunicate, but the 2 byte TAG field of the ASYNC ALERT SMS limits the number of nodes with full error reporting capability to 65,536."

18) Section 6 -should the footnote be so blatant in denoting the informative reference.
ACTION: Remove "(not part of this standard)". Same in footnote 2.

19) Section 6.2.1 Sentence one: ...in the Disabled state. (rest of sentence deleted) Add: The receiving port uses the DIS character to establish character synchronization. Sentence two is not correct and should probably be removed and just leave the (see 9.1.3.2)
ACTION: Accept except sentence one will be "The DIS character is sent in the Disabled state and can be used to achieve character synchronization." Sentence two is deleted.

20) Section 6.2.2 Sentence one is complete wrong. should read: In the Enabled state, the receipt of a FLAG character places the port into the Ready state (see 9.1.3.3) Delete second sentence entirely.

21) Section 6.2.3 NUL characters are used in the following cases. The sentence A router shall... should be moved before the previous correction, and the last sentence (When a Router...) should be deleted.
ACTION: Accept first item. Replace the last paragraph of 6.2.3 with the following and place it at the end of the second paragraph: "A node will insert NUL characters in a cut through frame when data for that frame is not available from the input port (e.g. NUL characters are received)".

22) Section 6.2.4 The reference should be to (see 8.4.2)

23) Section 6.2.7 Delete the second sentence

24) Section 6.2.9
Delete item b). This section is defining UDCs and when not to do something is covered elsewhere in the document (9.1.3.4 and 8.6)
Delete item c) and make sure it is covered in the ACK time-out section. ACK time-out is not based on characters, therefore should not be here. Otherwise this case could be added to all the other definitions.
Item d) makes no sense at all and is obviously an editorial cut and paste error. This was not in the original UIG document. If it does have a purpose, then the reference should be 8.6 not 6.3.
First sentence after list, delete -no reason to have here this is covered in section 7.4.
ACTION: Remove list and paragraph after list as it is duplicate information.

25) Section 6.2.9 Rewrite paragraph 7 and replaced with the following: "A User Defined character is discarded when the output port is in the Disable, Enabled states, or has not completed transmission of 10 FLAGS after entering Ready state.
ACTION: Agree in principle, change it to "A User Defined character is processed if the input port is in the Ready or Check states. A User Defined character is forwarded when the output port is in the Check or Ready states."

26) Table five has SSA-S3P in it. The document relationship map in Figure 1 shows no connection between SSA-S3P and SSA-TL1, delete it.

27) Section 6.4 First sentence second paragraph change to: Code violations are ignored the receiving port enters the Ready state.
(ACTION: Agree in principle, change to "Code violations are only checked when the port is in the Ready state, and are ignored in all other states.").

28) Section 6.5 Next to last sentence: Violation of these rules... should be move to end of clause as it was in the original UIG document. The last sentence is not correct. A Total/Absolute reset can be transmitted immediately after the 1st FLAG is sent in the Enabled state. (Then this is where the issue comes in that we need to have 200 FLAGS between consecutive Total/Absolute reset frames. Should it be dealt with here or elsewhere in the spec, this is character sequences) Hence this sentence should read: There shall be a minimum of 200 consecutive DIS characters transmitted with a DIS followed by a DIS or a DIS followed by a FLAG character. (Should the 200 consecutive DIS chars be left to elsewhere in the spec and just have the end of the previous sentence? Note that no protocol errors can be reported since you have not yet gotten into the Ready state)

(ACTION: Remove the last paragraph., Change paragraph 5 to “Violation of the above rules while in the Ready state shall...”

29) Section 7 In paragraph 5 add reference to pacing at end of 3rd sentence ...subject to pacing rules (see 8.4.2) at the end of paragraph 5 the reference should be (see 9.1.3 and 9.1.4) Paragraph 8 should singularize the word contents <-delete the s

30) Table 6 the reserved line should be the second line of the table to be consistent with the rest of the section.

31) *Section 7.1.2 The heading should be FSN/RESET TYPE (add FSN)
(ACTION: Instead, remove the FSN/ from the first line of Table 9. Bits 1 and 0 of the control field is either the FSN or the RESET TYPE field.)
*Section 7.1.3 First sentence FSN/RESET TYPE has spaces in it. The section heading for 7.1.2 and 7.1.3 need to be fixed to indicate what it is you are describing. Suggestion: FSN/RESET TYPE field - RESET TYPE for 7.1.2 and 7.1.3 FSN/RESET TYPE field - FSN Frame Sequence Number.
(ACTION: Change 7.1.3 to FSN field, change sentence one to “The FSN field...”, add the following to 7.1: “Depending on the value of the FRAME TYPE field, bits 1 and 0 of the CONTROL field will either be a FSN field or a RESET TYPE field (see 7.1.2 and 7.1.3).)
*In the 3rd paragraph the reference is wrong and should be changed to a (see 6.2.6)
(ACTION: change to 6.2.6.)
*In paragraph 4 sentence two should read: It is incremented modulo 4 when the trailing FLAG of a valid non-Control frame is received. (Note this description has been wrong from the beginning)
(ACTION: Agree.
*Rest of Section fix the FSN/RESET TYPE to be consistent.
(ACTION: change to FSN field).
*In paragraph 6 the reference for transmission errors should be (see 10.1.3)
(ACTION: change as specified).
*Last paragraph the rewrite of the original paragraph from the UIG got really confused. We suggest the paragraph to read as follows: “To facilitate future extensions, dual-port and switch nodes shall forward a frame with any bit pattern in the CONTROL field provided that FSN field value = RECEIVE SEQUENCE NUMBER for a FRAME TYPE field value ≠ 11b.
(ACTION: change as specified.)

32) Section 7.2 First sentence need to add ...begins with the next data character following the CONTROL field except Link Reset frames. Paragraph 3 should be ..an SMS or to receive...
(ACTION: change as specified.)

33) Section 7.2 Need to add a paragraph for Total/Absolute frames: “The ADDRESS field in Total/Absolute frames contains from 1 to 4 bytes, consisting of only the PATH component. The Path component is a minimum of 1 byte and can be extended a byte at a time by the use of the EXTEND bit. (Note that the word it was deleted from the last sentence and should be removed from the last paragraph on 7.2)
ACTION: control frames do not have an address field, only a path field as defined in Figure 8. Need to define Path field, and make sure the Control write up does not say Path, see 9.5.1, global check on Address field.

34) Section 7.2.1 the Extend should be small caps in the heading for consistency.
(ACTION: agreed)
Change the last sentence to be: For example, within the ADDRESS field of an Application frame, the first byte with the.....
(REJECT: It has no restriction for Application frames)

35) Section 7.2.3 add reference after 3rd sentence to switch byte algorithm (see 8.2.3) Delete the word maximum in paragraph 2 sentence 2. Change 2nd and 3rd sentence to say: “The length is not checked explicitly, however, total frame length is limited (see 10.1.1.9).” and move it as a paragraph to section 7.2.

36) Section 7.2.4 Combine sentences 2 and 3. All other Channels are dynamically. Strike paragraph 3, it was not in the original document and is covered in the Data field section. Add to 2nd sentence of paragraph 4 ...destination node and invokes the Link ERP process. (see 10.1)

37) Change 7.2.5 to 7.3 and define the Link Status Byte as: STATUS field The field which begins with the next data character following the CONTROL field in a Link Reset frame. We should not confuse people indicating that it is an Address field which is not really an Address. Lets break it out and define it as is.

38) Section 7.3 Data field (The use of small caps especially in headings is inconsistent, John please take a pass through the document looking at these)

39) Change sentence 1 to read: The DATA field is present in all frames except CONTROL frames. (This leaves open the possibility for the reserved FRAME TYPE field to include a DATA field when it gets defined) The last paragraph, last sentence should be ...in an SMS...

40) Section 7.4 Change sentence 1 to: The CRC field consists of the last 4 data characters that precede the trailing FLAG character. Add Link Status Byte to sentence 2. i.e.: It is accumulated over the CONTROL, STATUS, ADDRESS, PATH and DATA fields.

41) Section 7.4.1 Put back in the elongated form of C(x). It was in the original document and is considered very useful.
(ACTION: Accept)

42) Section 7.4.1 Paragraph 4, add PATH, STATUS to this sentence i.e. ...the CONTROL, PATH, STATUS, ADDRESS and DATA fields...

43) Section 8.1 Second paragraph: change to and ...source node and destination node. Third paragraph we like the term latency rather than delay: The theoretical minimum latency introduced by a cut-through.... Last paragraph, last sentence add to the end: ...with an ABORT character immediately followed by a FLAG character. (Just to reinforce the FLAG needs to follow the ABORT char as in the 1st sentence of this paragraph)

44) Section 8.2 1st sentence address should be in small caps. 2nd sentence change: If the receiving port determines that the Path component of the ADDRESS field is invalid according to its rules then it invokes the Link ERP process.(see 10.1) John, I'll leave it up to you if you want to indicate here that Link ERP fails with a FRAME REJECT ERROR. Or you could just leave that to section 10.1 to explain.

45) Section 8.2.1 Last paragraph port field should be in small caps

46) Section 8.2.2 Last paragraph port field should be in small caps. Last paragraph delete the last sentence and clarify the invalid path in the frame reject section 10.1.1.9.

47) Section 8.2.3 In the pseudo code: If should be capitalized, and the period is missing before all the Extends. For example First byte.Extend

48) Section 8.2.4 Second paragraph the reference should be to the Configuration process not Port Operational, Therefore change it to(see 9.4).

49) Section 8.3 The heading should not be Direction, It would be better to call 8.2 Web routing and call 8.3 Node routing. Paragraph two modify: Channels 0-127 are addressed by one byte. (Note that 80 00 is a frame reject and is not valid, so Channel 0 cannot be indicated by two bytes) Again in the last paragraph it does not always invoke the Async Alert process. If the Channel is invalid the Link ERP process is invoked. If the Channel is not assigned, then the node may directly invoke the Async Alert process.

50) Section 8.4 The heading should not be Responses, we know that this is historical but we recommend it be called Flow Control. Change the first sentence: To implement the necessary flow control, the destination port sends the source port two character pairs:
Next Paragraph: The characters are used in pairs to protect the Acknowledgment or Receiver Ready from being manufactured by transmission errors. A node only acts on an Acknowledgment or Receiver Ready when it has ...
Next paragraph. ACK and RR characters are never forwarded by a router.
Next paragraph (4th) In full-duplex operation a port may send an Acknowledgment for a received frame or a Receiver Ready, if buffer space is available, while it is in the middle of transmitting another frame.
In this case the transmitter gives priority to the Acknowledgment or Receiver Ready and interleaves it within the frame.

51) Section 8.4.1: In a) delete ...of the Response...
In b) the reference should be (see 6.2.6) not what it is.
In c) change set to sets: character, then it sets the PROTOCOL ERROR...
In the next to last sentence of the last paragraph it should read: ...setting the WAITING FOR ACK FLAG on port 1 to receiving the second...

52) Section 8.4.2 The heading should be:Receiver Ready pacing
In 1) a blatant error: When a port enters the Ready state it sets...

53) Section 8.5.1
In item 1) add a reference to 11.2.3 after the CONFIGURE PORT SMS
In item 2) the parenthetical should be an i.e. some implementations may use other criteria to determine the ability to originate a frame. Although two consecutive FLAGS exist they are not necessarily being looked for as a condition to start an origination.
In item 3) the reference should be 8.5.5
item 4) the reference should be 8.5.2 not 8.5.6
In item 4) delete the word the after whether: ...determines whether all ports of a ...
In item 8) the end of the sentence should be a colon not a period (REJECT)
Since we removed the SAT reference to the Originated frame definition (3.x)., add and item 9) Originated means that the trailing flag of an originating frame has been sent. Note that Aborted frames are not considered Originated and thus not counted against the SAT quotas.
ACTION: Agree with all but “in item 8)...”

54) Section 8.5.3 last sentence first paragraph: Thus all nodes shall implement...
In paragraph 6
item a) 2nd sentence add: no cut through frames pending.
item b) 2nd sentence add: no cut through frames pending.
In item c) 2nd sentence delete the word immediately this is due to the conditions in 8.5.6 which control SAT forwarding based on previous conditions i.e. 100 character times have elapsed etc.

55) Section 8.5.5 The term Device is used in several places and has never been defined. Either change Device 2 to Responder 2 etc.

56) Section 8.5.6 Sentence two make more explicit to remove confusion:The SAT TIME-OUT timer is set to zero when the port forwards a SAT character or reflects a SAT as a SAT’ character. (Note - as opposed to setting to zero when a SAT’ is reflected as a SAT.) <- this does not need to be in the standard.
ACTION: The term “reflect” or “forward” is clearly defined in 8.5.2, but I will change as no harm done.

57) Section 8.5.7 Paragraph 6 delete the end of the last sentence: transmission, exceeded only by the second... add (see 8.6) and change the comma to a period. This is because a new highest priority is added in Section 8.6 description below.
Section 8.6 Add 1) (Highest priority) A FLAG character if 10 consecutive FLAG characters have not yet been transmitted after entering the Ready state. Then bump the rest of the list down by one.
Item 10) Note that DIS characters are not sent when idle unless in the Disabled state. Since states have not been defined yet this item should be clarified.

58) Section 9.1.1 Change the 2nd sentence in paragraph 3 to say: If a port has a pair of transmit buffers and a pair of receive buffers available, one buffer of each pair is emptied/filled by the link...

59) Section 9.1.2 Change the second sentence ...that were transmitted before the error. Otherwise it sounds like you expect another to occur.

60) Section 9.1.5 Paragraph 6 Change 1st sentence to: The reception of a frame (whether the frame is Acknowledged) does not depend on the receiving port’s OPERATIONAL FLAG.

61) Section 9.1.10 3rd paragraph the word flag needs to be small capped. ...with the AA VALID FLAG

62) Section 9.1.13 1st sentence 1st paragraph. ...determine that a SAT character has been lost.
1st sentence 2nd paragraph. The node activates the SAT TIMEOUT TIMER whenever the port exits POST.
Last sentence delete the word then after the comma.
ACTION: agree except that the 1st sentence 2nd paragraph is “The node activates the SAT TIMEOUT TIMER whenever the port completes a power-on, Total Reset, or Absolute Reset”.

ACTION: change 1st sentence, 2 paragraph to “The node activates the SAT TIMEOUT TIMER whenever the port completes a power on, Total Reset or Absolute Reset frame.”

63) Section 9.2.4 In the list for the SMS OUTSTANDING (Table 15) there appears to be some missing. Query Node, Query Switch, etc. Please check this list for correctness as we are not firmware experts.
Paragraph 6 2nd sentence, change an to a before MASTER ALERT SMS
ACTION: Add QUERY SWITCH and change an to a. QUERY NODE is a special case.

64) Section 9.2.5 4th paragraph 1st sentence, the return path id should be indicated as small caps.

65) Section 9.3 In item 5) change to be more explicit. 5) Wait for 10 FLAG characters to be sent
In item 6) add ...available to receive at least 1 frame of any type.

66) Section 9.4.1 In item 1) first letter of Web should be capitalized.
In item 4) change 1st sentence: Each Configutor node registers with the nodes with which is expects to perform I/O processes.
Combine item 5 and 6 5) If the node is to be the Master, (see 12.1) then it should place all of its ports in Normal mode and transmit a CONFIGURE PORT SMS for each port to the nodes in the Topology table. A CONFIGURE PORT SMS is required...
In item 7) This ALERT CODE is not consistent with the value in Table 25. (delete the A) Also this terminology is no longer correct the term should be NODE not LINK, therefore it should read BOTH PORTS OF NODE ARE IN NORMAL MODE.

67) Section 9.5.1 In paragraph 2 change 2nd sentence: It is never forwarded by a router from one link to another and therefore has no ADDRESS field. Instead the STATUS field follows the CONTROL field and contains the Link Status Byte which is used by the Link ERP process (see 10.1.2).
Note: Add a sentence to new STATUS field clause that says: The STATUS field contains the Link Status Byte (see 10.1.2) We missed this from the earlier changes which were accepted.
4th paragraph: is pacing still the correct word now? should it be flow control? Para 4 2nd sentence, this is confusing and has been already defined in Section 8.6, please delete this sentence. Now Para 4 3rd sentence should be: The transmitter does not.... The last two sentences of this paragraph should be deleted. The last one is just plain wrong and the one before is redundant with paragraph above.
Paragraph 5, move the phrase after the comma to the end of paragraph 3 and eliminate Para 5.
Paragraph 6, 3rd sentence change to: The contents of the frame buffers shall not be changed by the receipt of a Link Reset.
ACTION: The ADDRESS field is now broken into Address/Path/Status, so I agree, but it is node slightly differently.

68) Section 9.5.2 Delete as per phone conversation and include appropriate information in Disabled State as indicated in previous comments as it was in the UIG document.
ACTION: Agree, it will move to the Disabled state, and the reset section will change according.

69) Section 9.5.3 General issue, Delete all uses of Absolute in this section and cover it in 9.5.4, or combine the two sections into a heading of Total/Absolute Reset and indicate the Absolute distinction.
1st Paragraph Change 1st sentence: A Configutor node can reset a destination node by originating a Total Reset Control frame.
Item 1) Delete as there is no Local Reset anymore
Item 2) Change to: All ports are set to Disabled State, Privileged mode. (Note this should cover the clearing of all the flags, etc. that Disabled State does)
Add new Item after Item 2) X) The OPERATIONAL FLAG is cleared
Item 3) Delete Absolute
Add new items: 4) Frame buffers are re-initialized
5) The TRANSMIT POINTER and RETRY POINTER are cleared
2nd Paragraph 1st sentence: ...ALERT SMS with an ALERT CODE value of RECONFIGURATION
Delete 3rd paragraph, This is covered well now - Otherwise the paragraph needs to be completely rewritten to use PATH field.
Para 4 2nd sentence, this is confusing and has been already defined in Section 8.6, please delete this sentence. Para 4 Delete last sentence: It is wrong and if fixed redundant.

70) Paragraph 5: We still have a couple is things to clear up here as discussed on the phone, please consider the complete new paragraph:

"A transmitter shall send 200 FLAG characters prior tooriginating a Total Reset frame in Enabled state to allow the remote port to synchronize if necessary. A transmitter shall be able to send a Total Reset frame when the port is in the Enabled or Ready state. The receiver shall recognize the Total Reset when the port is in any state."
NOTE: In support of having the Total/Absolute combined back together we do not want to give the reader the impression that frame storage is needed for receiving both types of frames independently.
Paragraph 6: Delete all "Absolute" words. 4th sentence delete the comma after Enabled. 5th sentence: ...shall notbe sent during.
Section 9.5.4: Delete the first paragraph. Add to 2nd paragraph that:Storage requirements for handling Absolute Reset frames is shared with Total Reset frames.

71) This brings up an issue that a new Section needs to be added to define what condition the node is left in when it Exits POST. This section needs to include all the information which is in the Total Reset list as far as what is cleared etc. This new section will be under 9.1.3. i.e. 9.1.3.5 Exit from POST
ACTION: This will be covered in the Absolute Reset and Power On Reset sections. Absolute reset does post and the equivalent of a Power On Reset (except maybe not a spin-up and code reload - not part of the standard).

72) Section 10.1 In item a) add ...simplified sinceframe error recovery is...
In item b) Delete second sentence, it does not make any sense with anything else in the standard.
Comment on d) is that this is very marketing oriented and is mostly covered by a)
2nd paragraph add the word from: ...attempts to recoverfrom the error (It does not try to get the error back)
3rd paragraph: We could not find a Link Reset Handling process anywhere in the document. It is essentially steps 4 - 9 of the Link ERP process. Our suggestion is the following for this paragraph:
"The port that detects the Link Error invokes the Link ERP process. During the Link ERP process, a Link Reset frame will be sent to the remote node, which will trigger the remote node and invoke the Link ERP process (if it did not also detect an error and invokethe Link ERP process on its own). The Link ERP process is coordinated between the two ports so that they remain synchronized."
4th paragraph 1st sentence add the word from: ...cannot recoverfrom some errors.... 3rd sentence: In these cases the Link ERP exitsand attempts to alert the Master via the Async Alert process (see 10.3)
Delete the last sentence of paragraph 4.
In second list item b) the second sentence does not include what to do with the Reserved frame type if it was a cut-through frame. Suggest to change b) to: The link ERP process does not recover Control frames. Note that UDC chars here is garbage information and gets deleted.
In item c) change Privileged or Application tonon Control 2nd sentence in c) should beremote port not destination.
In item f) add comma after communication In 2nd sentence delete and the Link Reset Handling process
ACTION: Agree, and the Link Reset Handler has been removed, I will do a global check and make Link ERP.

73) Section 10.1.1 2nd paragraph the word interrupt should be plural.

74) Section 10.1.1.6 1st paragraph last sentence should end in a colon not a period.

75) Section 10.1.1.7 Delete the word been after not.

76) Section 10.1.2 Change the ADDRESS field toSTATUS field

77) In paragraphs 3 and 4 it should be theremote node not the destination node (as is has been correctly identified in the last paragraph)

78) Section 10.1.3 Item 5) change: ...places the port to the Disabled... to ...places the portin the Disabled

79) Section 10.2 Change first word from The toThis

80) Section 10.2.4 Change 2nd an toa

81) Section 10.3 Item 1 Change QUEUE toQUERY

82) From section 10.3 until section 11 the capitalization of the word Handling is very inconsistent

Sincerely,

John Scheible
Voice: (512) 823-8208
FAX: (512) 823-0758
Email: Scheible@vnet.ibm.com