

Accredited Standards Committee
X3, Information Processing Systems

Doc: X3T10.1/96a167r0
Date: September 30, 1996
Project: X3T10.1/1146D
Ref Doc.: SSA-PH2 rev 3
Reply to: John Scheible

To: X3T10.1 Membership
From: John Scheible

Subject: Minutes of SSA-PH2 study group - August 24-26, Boston, MA.

Agenda

- 1. Opening Remarks
- 2. Attendance
- 3. Approval of agenda
- 4. Meeting schedule
- 5. Document distribution
- 6. New business
 - 6.1. Eye Diagram (96a165r1) Phil Murfet
 - 6.2. Line driver testing (peak voltage caused by AC coupling) (96a165r1) Dave Instone
 - 6.3. Line Driver, etc. (96a165r1) Dan Tsai
 - 6.4. HSSDC connector (96a165r1) Lisa Huff
 - 6.5. HSSDC Connector Pinout (96a165r1) Bill Ham
 - 6.6. Optical Annex (96a166r0) Mark DeWilde
 - 6.7. Page by page review all
 - 6.8. FC-EL presentation Ed Clausell
 - 6.9. Recommendation of what to do.
- 7. Action items
- 8. Adjournment

1. Opening Remarks

John Scheible and Dan Tsai convened the meeting at 9:00am. Dan Tsai was thanked for setting up the meeting. As is customary, the people attending introduced themselves.

It was stated that the meeting had been authorized by X3T10.1 and would be conducted under the X3 rules. Ad hoc meetings take no final actions, but prepare recommendations for approval by the X3T10.1 task group. The voting rules for the meeting are those of the parent committee, X3T10. For the ad hoc, other than straw votes, the voting rules are: one vote per participating company.

The minutes of this meeting will be posted to the X3T10 BBS and the SSA Reflector and will be included in the next X3T10.1 committee mailing.

2. Attendance

Attendance at working group meetings does not count toward minimum attendance requirements for X3T10.1 membership. Working group meetings are open to any person or company to attend and to express their opinion on the subjects being discussed.

The following people attended the meeting.

Lisa Huff	Amp	lisa.huff@amp.com
Bill Ham	DEC	ham@subsys.enet.dec.com
John P. Scheible	IBM, Austin	scheible@vnet.ibm.com
Chris Parker	IBM, Burlington	parker@vnet.ibm.com
Phil Murfet	IBM, Havant	pmurfet@vnet.ibm.com
Daniel Tsai	IBM, San Jose	tsaidaniel@vnet.ibm.com
Mark DeWilde	Pathlight	mark@pathlight.com
Dave Instone	Xyratex	dinstone@uk.xyratex.com

3. Approval of agenda

The agenda was approved.

4. Meeting schedule

9/24 Tuesday	9:00 am	12:30 pm	PH2
	12:30 pm	1:30 pm	lunch
	1:30 pm	8:00 pm	PH2
9/25 Wednesday	8:30 am	10:30 pm	PH2
	10:30 am	12:00 am	Presentation on FC-EL (Ed Clausell)
	12:00 am	1:00 pm	PH2
	12:30 pm	8:00 pm	PH2
9/26 Thursday	8:30 am	12:00 am	PH2 overflow if needed

5. Document distribution

X3T10.1/96a165r1	Changes to SSA-PH2 rev 3	John Scheible
X3T10.1/96a166r0	Fiberoptics Annex to TL2 (should be PH2)	Mark DeWilde
X3T10.1/1146D	SSA-PH2 rev 3	John Scheible
	Fiber Channel - Enhanced Loop (FC-EL) overview and Q&A	Horst Truedstedt

6. New business

- 6.1. Eye Diagram (96a165r1, issue 2) Phil Murfet

The group agreed with Phil Murfet's recommendation of eye diagram changes. The driver eye is now symmetrical with several changed values.

- 6.2. Line driver testing (peak voltage caused by AC coupling) (96a165r1, issue 5) Dave Instone

The group agreed with Dave Instone to move the scope probe point internal to the test load and to change the capacitance requirements.

- 6.3. Line Driver, etc. (96a165r1, issue 3) Dan Tsai

After discussion, Dan Tsai withdrew his proposed changes. The changes to figure 5 to half the current were adopted (the other half is internal to the driver via the termination resistor, but due to the definition of the driver including the terminating resistor, the current as seen at the connector is half). Various table and figure captions will be changed to emphasize "at the port connector".

- 6.4. HSSDC connector (96a165r1, issue 4) Lisa Huff

Lisa came with new artwork, and Bill Ham was able to take the .HGL format and convert it to excellent .CGM images. We will remove reference to the AMP spec and point to IEC documents. Lisa had most of these, but took action items to resolve two AMP references and will get the title of one part of the IEC document. The TDB was resolved.

- 6.5. HSSDC Connector Pinout (96a165r1, issue 1) Bill Ham

The FC pinout was adopted. However, pins 4 and 5 are reserved for "Module Fault Detect" and "Output Disable" without specifying if they are positive or negative active or what the assertion/deassertion levels are. Since SSA is product driven, we cannot let the definitions undefined. Therefore the group made the pins reserved (no mention of output or input) and later chose to make one of the pins "Logic ground" to make testing easier.

- 6.6. Optical Annex (96a166r0) Mark DeWilde

The Optical Annex was discussed and modified. The Annex is informative.

- 6.7. Page by page review all

The following items were discussed. This list is not complete, but represents the larger changes. SSA-PH2 rev 3a will document the changes through revision marking.

- 1) Change all references from V_{dd} to V_{ot} .
- 2) Note 1 under clause 7, change the compliance with SSA-PH1 note to having SSA-PH1 have a receiver input range of V_{ot} of +/- 650 mV rather than 500 mV.
- 3) Figure 2 is redone to reflect the line driver/receiver boundaries (move terms). In general, several changes are made throughout the document to make sure that Line Out is after the coupling element.
- 4) Change several references to cable to the more accurate Port Connection.
- 5) In 7.1.3.1, change the shall to a should when stating "All inputs should originate from drivers that are compliant.". This eliminates the chicken and the egg issue (how do you get the first conforming driver when you need one to get conformance?).
- 6) The driver spectral content was changed from 1,5 GHz to 1,0 GHz for 200 Mb/s.
- 7) The driver and receiver eye masks are to be simplified. Currently, a complex picture is attempting to show both the operating and testing parameters with 13 time points. When you add 200 and 400 Mb/s you get 4 pictures. A simplified picture can use shading and needs only 4 time points (although not to scale for all four eyes).
- 8) Ground shift was discussed extensively. The ground shift budget was broken up into parts and documented.

- 9) Common mode was discussed extensively, and was restored to the spec.
- 10) Due to the use of the coupling element, several references were changed to "The a.c. component of...". Also, the values were different for d.c. to 6 MHz and 6 MHz to 500 MHz.
- 11) Rather than saying "Electrical activity shall be maximized" (impossible), say "Electrical activity of the node should be representative of the normal operation of the node in a heavily loaded system".
- 12) Power distribution to a repeater was discussed. It was decided to add a statement "Only one connector of a Port Connection Segment may source power to the PCS." and that only LineOut, LineIn, and shield lines may be connected between nodes.
- 13) In Annex F (informative) the "Line driver fault detection section was removed as it is no longer valid in an AC coupled environment. The "Line receiver fault detection" section changed the maximum RLFT to 100 mV.

6.8. FC-EL presentation

Ed Clausell

Ed Clausell (IBM) gave the group a background on the reasons for FC-EL. It combines performance and fault isolation aspects of SSA with FC-AL's gigabit and distance features. Hopefully it will end the serial wars. IBM has not changed any product plans (still support SSA). X3T11 will decide what to do about FC-EL in December.

6.9. Recommendation of what to do.

The group unanimously recommended that 96a165r1 (as modified), 96a166r0 (as modified) and the changes recommended during the page by page review be incorporated in SSA-PH2 rev 3a in time for the Hawaii meeting.

7. Action items

The following action items were assigned.

- 7.1 Annex D Solderability IEC reference to replace AMP reference (Lisa Huff)
- 7.2 Annex D Industrial mixed flowing gas IEC reference to replace AMP reference (Lisa Huff)
- 7.3 Need title for normative reference for IEC 512 part 2 (Lisa Huff)
- 7.4 Actual ground shift measurements will be made (Mark Dewilde)
- 7.5 Frequency spectrum of ground shift will be made (Dave Instone)
- 7.6 Common limits of the 20 and 40 MB/s SSA receivers (Phil Murfet)
- 7.7 Generate SSA-PH2 rev 3a based on the SSA-PH2 study group recommendations (John Scheible)

8. Adjournment

The meeting adjourned at 2:30 p.m. on Wednesday. The Thursday meeting day was canceled as it was not needed.

Sincerely,

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