

Accredited Standards Committee*
INCITS, Information Technology

Doc. Number:
Date: 1/19/06
Project: FC-BaseT
Reply to: Claudio DeSanti
Dean Wallace

TO: MEMBERSHIP of T11.2

FROM: Claudio DeSanti Chair
Dean Wallace Secretary

Subject: Draft minutes from FC-BaseT interim meeting on 1/19/06.

AGENDA

1. Opening remarks and introductions
2. Attendance and membership
3. Approve agenda
4. Document Distribution
5. Review minutes of previous meeting
6. Review old action items
7. Call for patents
8. New business/presentations
 - 8.1.1 Proposed FC-BaseT outline (Claudio DeSanti, Cisco) 06-024v0
 - 8.1.2 Proposed FC-BaseT structure and concepts (Claudio DeSanti, Cisco) 06-025v0
 - 8.1.3 Proposed FC-BaseT PCS (Claudio DeSanti, Cisco) 06-026v0
 - 8.1.4 Letter to IEEE requesting selector field value (Schelto Van Doorn, Intel).
 - 8.1.5 FC-BaseT PHY performance (Scott Powell, Broadcom) 06-046v0
 - 8.1.6 Simplified FC-BaseT auto negotiation (Ali Ghiasi, Broadcom, Hossein Hashemi, Emulex) 06-041v0
9. Old business/presentations
10. New business
11. Review action items
12. Next meeting schedule
13. Adjourn

* Operating under the procedures of the American National Standards Institute. INCITS SECRETARIAT, Information Technology Industry Council (ITI), 1250 Eye street NW, Suite 200, Washington DC, 20005-3922, Email: incits@itic.org Telephone 202-737-8888, FAX 202-638-4922

RESULTS OF MEETING

1. Opening remarks and introductions*

Claudio DeSanti led the meeting. He opened the meeting at 10am. He then led a round of introductions.

2. Attendance and Membership

Attendance at working group meetings does not count toward minimum attendance requirements for T11.2 membership. Working group meetings are open to any person or organization directly and materially affected by T11.2's scope of work but do not count toward minimum attendance for T11.2 membership.

The following people attended this meeting:

NAME	COMPANY	Email address
Elang Pakriswanup	Agere	pakriswanye@agere.com
Bill Woodruff	Aquantia	bill.woodruff@aquantia.com
Nabil Osman	ARL	nabil.osman@ptele.com
Ali Ghiasi	Broadcom	aghiasi@broadcom.com
Scott Powell	Broadcom	spowell@broadcom.com
Claudio DeSanti	Cisco	cds@cisco.com
Hossein Hashemi	Emulex	hossein.hashemi@emulex.com
Schelto VanDoorn	Intel	schelto.vandoorn@intel.com
Wei Zhou	Marvell	wzhou@marvell.com
Scott Kipp	McData	scott.kipp@mcddata.com
Dean Wallace	QLogic	dean.wallace@qlogic.com

3. Approval of Agenda*

The agenda was approved with no one objecting to the agenda.

* Operating under the procedures of the American National Standards Institute. INCITS SECRETARIAT, Information Technology Industry Council (ITI), 1250 Eye street NW, Suite 200, Washington DC, 20005-3922, Email: incits@itic.org Telephone 202-737-8888, FAX 202-638-4922

4. Document distribution

This section describes the availability of draft documents that are intended to be published as a result of work by the electrical working group.

Document distribution is now being done over the web. Documents relating to the electrical working group work can be found on the T11 website (www.t11.org) by going to “documents” and searching on the key word electrical.

A summary of the presently active policy to document distribution is included for reference.

All presentations are posted electronically at the approved ftp within two weeks after the meeting. Format must be an approved electronic file format.

Presentations are defined as material shown publicly in the plenary or authorized working group meetings.

Submission of documents for T11 document numbers: An online system is now available to provide document numbers and accept the submission of documents. The system is accessed via the T11 web page at <http://www.t11.org>. Follow the “docs” link in the left hand frame, or at the bottom, and fill in a form giving details of the document. In order to complete the form, it will be necessary to enter a password. The password is given out at T11 meetings, or can be obtained from the T11 chair. Instructions will then be given about uploading the file to the ftp site.

We now use all electronic document distribution.
A T11.2 reflector is operational over the T11 site.

The committee forms it’s agenda by the following:

1. A call (reminder) for presentations by the chair three weeks in advance.
2. Those wanting to be on the agenda submit request including; title, presenter, time required, abstract.
3. Chair creates an agenda and posts two weeks before the meeting.
4. At the meeting it is the chair’s discretion to allow additional presentations.

5. Review minutes of previous meeting*

The old minutes were not reviewed

* Operating under the procedures of the American National Standards Institute. INCITS SECRETARIAT, Information Technology Industry Council (ITI), 1250 Eye street NW, Suite 200, Washington DC, 20005-3922, Email: incits@itic.org Telephone 202-737-8888, FAX 202-638-4922

6. Review old action items

AI-1: Schelto to request IEEE an auto-negotiation selector field value to identify FC-BaseT. Action item is completed.

AI-7: Claudio to formalize presentation 05-800v0 into proposal. Action item is completed.

AI-8: Scott to provide a cable reach table for $BER=10^{-12}$ for comparison. Action item is completed.

AI-9: Scott to formalize presentation 05-812v0 into proposal. Carry over.

AI-10: Ali and Hossein to formalize speed negotiation and auto negotiation by next meeting. Closed by presentation.

AI-11: Ali to formalize E-FIFOs in text form for standard. Carry over.

7. Call for patents

The chair noted that the formal call for patents is issues at the T11.2 and T11 plenary meetings. Companies with patents that may bear on the subject of this ad hoc are advised to consider this call for patents. There was no response for this call for patents.

8. FC-BaseT discussions/presentations

8.1.1 Proposed FC-BaseT outline (Claudio DeSanti, Cisco). 06-024v0

Claudio presented the proposed outline. He used the templates and started to fill out what is needed and that the proper items are included. The group reviewed scope and references. Reviewed the table of contents in the proposed document. What will be in the annex was also reviewed. The annex will have additional mappings for other potential use with other standards. Claudio moved that we accept this as the outline for the standard, Schelto seconded the motion. Passed without objection by acclamation.

The names used are the IEEE names and conventions.

8.1.2 Proposed FC-BaseT structure and concepts (Claudio DeSanti, Cisco). 06-025v0*

This is the proposal for chapter 4 in the document, FC-baseT Structures and Concepts. Claudio went through the overview. Claudio reviewed the relationship with other standards, section 4.2. This highlights the FC-BaseT mapping and the E-FIFO. The diagram comes from 10GFC and was modified to meet FC-BaseT needs. Reviewed logical model of the PHY, section 4.3. Also reviewed section 4.4, the FC-baseT nomenclature. Claudio moved that we accept this as chapter 4 for the standard, Schelto seconded the motion. Passed without objection by acclamation.

8.1.3 Proposed FC-BaseT PCS (Claudio DeSanti, Cisco). 06-026v0

Claudio reviewed the proposal for chapter 5, the physical coding sublayer (PCS) section. Section 5.2 is FC-BaseT usage of XGMII. Table 2 lists the XGMII characters. The FC data words and ordered sets are easily represented in XGMII. Do we want to add a table for the coding, or is the drawing sufficient. Hossein Hashemi (Emulex) suggested that just one example should be added. Claudio reviewed the PCS transmit function (section 5.4). The figure that was reviewed was the PCS transmit bit ordering (figure 2). There was concern about synchronization and it was recommended that a self synchronizing scrambler be used. Need to describe the conditions under which synchronization is lost and how to recover. Using four words like FC currently does is a good way to do it (160 bits).

E-FIFO should work for 8Gb also. Be careful between FC and Ethernet because bit ordering is reversed.

Claudio is proposing making CRC a 5 bit CRC. He will have something ready to present by next meeting. Claudio will update the document for next meeting. The first draft will be by the meeting in February.

8.1.4 Letter to IEEE requesting selector field value (Schelto Van Doorn, Intel).

The letter isn't uploaded and will need to be sent by Schelto, the T11 liaison with IEEE 802, on behalf of Bob Snively. This letter is requesting 802.3 to allocate an Auto-Negotiation selector field value for use by INCTIS T11. The selector field is generic so it could be used for other storage related standards as well. T11 will be the administrator of these bits, we will allocate them as needed. Then other standards won't need to go to IEEE to request bits.

* Operating under the procedures of the American National Standards Institute. INCITS SECRETARIAT, Information Technology Industry Council (ITI), 1250 Eye street NW, Suite 200, Washington DC, 20005-3922, Email: incits@itic.org Telephone 202-737-8888, FAX 202-638-4922

8.1.5 FC-BaseT PHY performance (Scott Powell, Broadcom). 06-046v0

Transmitter overview. The mapping is 4D Schlaefi mapping and PAM-8 encoded. The Schlaefi mapping simplified the receiver implementation. The size will be << 2x 1000base-T die area. In 2Gb the power will be slightly less than 1W. At 4G the power will be less than 1.5W. This is assuming 90nm or 65nm. Estimated cable reach, 100 meter for 1Gb, 60/70 meter for 2Gb and 20 meter for 4Gb on Cat5e. For Cat 6 the reach will be 100 meters for 1Gb, 70 meters for 2Gb and 40 meters for 4Gb. The reach will be 100 meters for 1/2/4Gb using Cat 6a. It appears class A emissions spec can be met with this encoding scheme also. The emi looked fairly high and there was concern about multi port emi, power back off might need to be considered. There is still work to be done in defining the transmitter specs. Studying power back off is something that should be done. Ali would like to propose using 1Vpp instead of 2Vpp for a starting voltage swing.

8.1.6 Simplified FC-BaseT auto-negotiation (Ali Ghiasi, Broadcom; Hossein Hashemi, Emulex). 06-041v0

SERDES electrical interface FC-PI-2 delta point. Ali went through the block diagram for auto negotiation. The presentation was modified on the fly to reflect the group discussion. Little work is still needed for auto-negotiation.

9. Old business/presentations

No old business.

10. New business*

No new business.

11. Review action items

AI-12: Scott Powell will define self synchronizing scrambler for next time.

AI-13: Schelto Van Doorn will work on Port Management, section 9.

AI-14: Scott Powell will work on section 6.

AI-15: Ali Ghiasi will work on section 7 and 8.

* Operating under the procedures of the American National Standards Institute. INCITS SECRETARIAT, Information Technology Industry Council (ITI), 1250 Eye street NW, Suite 200, Washington DC, 20005-3922, Email: incits@itic.org Telephone 202-737-8888, FAX 202-638-4922

12. Next meeting schedule

The next meeting will be Monday 2/6 in Dana Point, from 4pm to 7pm.

13. Motion to adjourn

Motion to adjourn passed without objection.