

MINUTES FOR IEEE802.3ab INTERM MEETING  
JANUARY 12-13  
BRISTOL SUITES  
DALLAS, TX

SUMMARY

This was a highly successful meeting. High points:

- We reached agreement on start-up.
- We reviewed all 74 comments received against D1.1 and approved responses to them.
- We conducted a page-by-page review of D1.1.

The February interim is scheduled for the 12<sup>th</sup> and 13<sup>th</sup> in the San Francisco Bay area.

There is still one open issue related to start-up—how to properly detect when master and slave pass from one phase to another during start-up (this signal detect problem.) There is to be reflector discussion on this topic, followed by resolution at the February interim.

A discussion of Auto-Negotiation was postponed to the February interim. Kishan Konda is to post a presentation to the reflector before the February interim.

We still have some final tuning to do on the link section.

We still need to provide bit time data for 40.13.

ACTION ITEMS

Team to work on resolution of startup signal detect/timer problem—Sailesh Rao, Dan Ray

Chris DiMinico and Colin to work with Barry Reinhold and his team at the UNH to define the requirements for a 1000BASE-T conformance/interoperability test suite.

Colin to produce D1.2 and post by 23 January

Colin to post comment list by 19 January

Dan Dove—define a noise injection test & post to reflector for discussion at February interim.

Dan Dove—to start reflector discussion on how to create an automated system for dealing with crossover requirements when dealing with 100BASE-TX (or 10BASE-T) devices.

Kishan Konda to prepare a presentation on Auto-Negotiation for posting to the reflector prior to the February interim. Auto-Negotiation to be discussed at February interim.

MOTIONS

1/12/98: That the committee adopt the following policy: If a participant wishes to change an accepted technical specification, that participant must present clear and convincing evidence that the accepted technical proposal is flawed. His evidence must be presented in enough scientific details to allow independent verification.

M—Gladstone, S—Raghavan (withdrawn after discussion)

1/12/98: To close debate and consideration of start-up protocols and move on.

M—Dineen, S—Gladstone: Y-16, N-8, A-0—FAIL (Technical, requires 75%)

1/12/98: To accept Jaime Kardontchik's technical comment (22) to switch the master and slave roles in start-up.

M—Creigh, S-Kardontchik: Y—7, N--14, A—12, FAIL (Technical, requires 75%)

1/13/98: To accept the resolution of comments 1-35 and include the resolved comments in 802.3ab D1.2.

M—Dineen, S-McConnell: Y-25, N-0, A-0--PASSED

1/13/98: To accept the resolution of comments 36-74 and direct the editor to produce 802.3ab D1.2 reflecting resolved comments 1-74.

M—Dineen, S-Raghavan: Y-33, N-0, A-2--PASSED

## STRAWPOLLS

1/12/98 Startup issues

This straw poll was taken to assess the importance of concerns raised with regards to the startup protocol specified in D1.1. Concerns are rephrased as statements to simplify comprehension.

1. There is an excessive number of phase acquisitions is a problem (agree=5, disagree=20)
2. The low "plagiarism coefficient" (i.e., similarity to other solutions) is a problem. (agree=2, disagree=19)
3. It is a problem that the protocol does not guarantee timing acquisition for both master and slave independent of echo & NEXT. (agree 1, disagree 15)
4. It is a problem that the protocol does not allow multiple master ports to operate with the same clock at all times. (agree=2, disagree=17)
5. It is a problem that the protocol does not guarantee that the slave DOES NOT freeze the PLL in Phase II. (agree=1, disagree=18)

PRESENTATIONS (to be posted to 1000BASE-T FTP site)

Oscar Agazzi et al—Simulation Results for the Startup Protocol Approved in Montreal

Jaime Kardontchik—Startup Protocol Proposal

Henry Hinrichs: Attenuation of a Resistive Bridge vs a Hybrid Transformer

Chris DiMinico—1000BASE-T Link Issues

## DETAILS

1/12/98 AM

Morning scheduled for a discussion of start-up

Motion by Gladstone/Raghavan

Discussion of enforcability, role of the 75% rule

Motion withdrawn

George Eisler presented a slide summarizing start-up proposals.

After some general discussion the group agreed to follow the following process for the start-up discussion:

Formal presentations

Discussion

Straw polls to guide the group

Formal motions

Presentation by Oscar Agazzi re results of simulating the start-up

Presentation by Jaime Kardontchik—repeat of November proposal

After proposal, Jaime stated his presentation was for clarification, but he proposed that rather than adopt his November solution, the group instead accept his comment #22, calling for a reversal of the roles of master and slave.

There was considerable discussion related to clarification. After some time, the group specified the following concerns with the start-up proposal shown in D1.1:

1. There is an added phase acquisition step for the slave.
2. There is a low plagiarism coefficient (that is, the D1.1 start-up protocol is not similar to other, known start-up protocols.)
3. The D1.1 start-up protocol does not guarantee timing acquisition for both master and slave is independent of echo and next.
4. The D1.1 start-up protocol does not allow multiple master ports to operate with the same clock at all times.

5. The D1.1 start-up does not guarantee that the slave will not freeze its PLL in Phase 2.

A spirited discussion on these issues followed.

A straw poll was taken to determine the group's opinion on each of these issues (see votes.) None of these issues were found to be a major concern for the group.

Motion by Dineen/Gladstone to close debate on start-up  
Question called by McConnell. The vote to call the question passed  
The motion failed.

Motion by Creigh/Kardontchik to accept comment 22 and reverse the role of master and slave  
After some discussion, Dineen called the question; there was no opposition to calling the question.  
The motion failed. Y=7, N=14, A=12.

Concern was raised about the ability of both slave and master to accurately detect when the transition from one start-up phase to another occurs. (Defined as the signal detect problem.) Discussion of this problem was deferred until after lunch.

Break for lunch  
1/12/98 PM

Dan Ray briefly summarized a possible solution to the signal detect problem that a small team had developed during the break. He proposed that further discussion of the problem be deferred until the February interim so the solution could be developed and analyzed.

George Eisler reminded the group that 802.3ab is scheduled to present a tutorial on 1000BASE-T at the March interim. After some discussion, a group (Gladstone, Jover, McConnell, Mick, Pace) volunteered to take responsibility for organizing the tutorial.

After some discussion, the group agreed to schedule the February 1998 interim meeting for February 18-19. The meeting is to be held in the San Francisco Bay area. (This decision was revisited on 1/13/98 and the meeting dates were changed to 2/12-13.)

John Creigh presented a series of comments related to Figure 40-4 (PHY Control state machine). These comments include 40, 69, 70, 71. Disposition of these comments is reported in the comment database.

Henry Hinrichs made a presentation on "Attenuation of a Resistive Bridge vs a Hybrid Transformer. (to be posted to FTP site)

Chris DiMincico made a presentation on the current status of the link section. ( To be posted to the FTP site.)

Break for Dinner/TI-sponsored reception

1/13/98 AM  
The morning session was devoted to a discussion of the comments. Results of this discussion are summarized in the comment database which is posted on the FTP site.

Break for lunch

1/13/98 PM

Conformance/Interoperability testing

Colin Mick discussed the need to begin defining the requirements for a 1000BASE-T conformance/interoperability test suite. He pointed out that the group had the opportunity to have a basic description of the test suite ready for review at the March plenary so it could be included in a draft specification for working group ballot. He asked for volunteers to work on this project and coordinate with the University of New Hampshire IOL team. Chris DiMinico volunteered to work with Colin on this task.

1. Creation of a reference test channel as per 40.7.1.1.1.
2. Creation of a reference “worst case” channel as per 40.8.
3. Testing of Auto-Negotiation (expansion of current tests for 100BASE-TX.)
4. Test for start-up.
5. Steady-state operation.
6. Operation with noise injection (Dan Dove to define noise injection parameters.)
7. Action on link failure.

Reconsideration of February interim meeting.

A request was made to reconsider the dates of the February interim and the meeting was rescheduled to February 12-13.

Dan Dove made a brief presentation on a possible approach to the signal detect issue.

The remainder of the afternoon was devoted to a page-by-page review of D1.1. The results of this discussion will be reflected in D1.2.

Some general points raised during the review.

1. Common mode voltage figures to be taken from 10BASE-T.
2. Define a generic tolerance of -0 to +100% (unless specified)
3. Add a discussion of the scrambler to the overview.
4. With regard to initial states, default initializations, if not specified, are left to the implementer.
5. Packets to be changed to data.
6. Provide a generic definition of “quartets of symbols” which will be ternary symbols if sending idle, quinary symbols if sending data
7. There was a group consensus in support of the current 3-level start-up signal.

ATTENDEES (last,first,phone,email)

Agazzi,Oscan,Broadcom,714-450-8700,oea@broadcom.com

Azadet,Kamran,Bell Labs,,

Booth,Brad,Jato Technologies,5120407-2135,bboth@jatotech.com

Campbell,Bob,Lucent,732-957-2669,rrcampbell@lucent.com

Castellano,Andy,Broadcom,714-450-8700,ajc@broadcom.com

Creigh,John,Broadcom,,714-450-8700,jcreigh@broadcom.com

Dickens,Erik,Texas Instruments,972-480-2525,edickens@ti.com

DiMinico,Chris,Digital,508-486-6983,chris.dominico@mts.enet.dec.com

Dineen,Thomas,LSI Logic,408-954-3739,dineen@lsil.com

Dinh,Thuyen,Valor,619-537-2633,tdinh@valorinc.com

Dove,Dan,HP,916-785-4187,dan\_dove@hp.com

Eisler,George,Rockwell,310-459-9225,geisler@aol.com

Fritz,Scott,TDK Semiconductor,530-478-8271,scott.fritz@tcs.tdk.com

Gladstone,Bruce,ComCore,818-880-5192,bruce@comcore.com

Hatamian,Mehdi,Broadcom,714-450-8700,mehdi@broadcom.com

Hinrichs,Henry,Pulse,619-674-8208,henryhinrichs@pulseeng.com

Jin,Robert,Seeq,510-226-7400x3527,jin@seeq.com

Jover,Juan,Level One,305-674-8880,juan@level1.com

Kardontchik,Jaime,AMD,408-749-5103,jaime.kardontchik@amd.com

Koenig,Christine,MagCon,619-513-2140,ckoenig@magcon.com

Konda,Kishan,Level One,916-855-5000,kishan@level1.com

Lee,Howard,Bel Fuse,510-227-0102,howard.lee@belf.com  
McConnell,Mike,Broadcom,714-450-8700,mikem@broadcom.com  
McNeil,Vincent,Texas Instruments,972-480-3050,vmcneil@ti.com  
Miao,Tremont,ADI,781-937-1222,tremont.miao@analog.com  
Mick,Colin,The Mick Group,650-856-3666,ckm@mickgroup.com  
Mlinarsky,Fanny,Scope Communication,508-786-9600x110,fanny@scope.com  
Murphy,Denis,Pulse,619-674-8317,denismurphy@pulseeng.com  
Murphy,Richard,Level One,9160855-5177,rmurphy@level1.com  
Nobakht,Ramin,Rockwell,714-221-6862,ramin.nobakht@rss.rockwell.com  
Oh,Stephen,NSC,408-721-2326,stephen.oh@nsc.com  
Pace,Robert,TI,972-480-2567,rpace@ti.com  
Pryor,Steve,Compaq,972-929-6190,steve.pryor@compaq.com  
Raghavan,Sreen,ComCore,619-535-0074,sreen@comcore.com  
Rao,Sailesh,Level One, 732-972-0707 x11,sailesh@level1.com  
Ray,Dan,Level One,916-855-5000,dray@level1.com  
Smith,Michael,ControlNet,408-341-1428,michael@controlnet.com  
Somach,Craig,Bel Fuse,619-224-9190,102338.407@compuserve.com  
Thompson,Geoff,Bay Networks,408-495-1339,thompson@baynetworks.com  
Tran,Hiep,Texas Instruments,972-995-7885,htran@hc.ti.com  
Wertheimer,Aviad,Digital,972-2-589-2555,aviad@isv.digital.com