Agenda

P1394b Working Group

August 24, 1999

1. Review Agenda
2. Review of July Meeting Minutes
   - 2.1. Clarify mandatory Isolation requirement motion by Steve Bard to be normative in Chapter four only and not normative for 1394b implementation in general.
3. Procedures
   - 3.1. Voting
   - 3.2. Price/Pricing
   - 3.3. Call for Patents
4. Review of Old Action Items
5. Meeting Schedule
   - 5.1. Page Turner 2 (US) September 16 & 17, Scotts Valley (Zayante)
   - 5.2. October 12, Rennes, France (Canon Host)
6. Presentations
   - 6.1. Update on Border Node [Jerry Hauck]
   - 6.2. Update on BOSS [Mike Teener]
   - 6.3. Update on Port and C Code [Colin Whitby-Strevens]
   - 6.4. Update on Beta-connector [Molex]
   - 6.5. SCAT Status [David Wooten]
7. Actions to Complete Spec by October
8. Review of Action Items
9. Adjournment

MEETING MINUTES

Steve Bard requested a clarification be made in the previous meeting minutes with regard to the motion mandating that a connector support an implementation of isolation for 1394b and that it was NOT a motion to mandate isolation in all 1394b implementations. The secretary was charged to modify the previous meeting minutes accordingly and republish to the ftp repository.

Review of agenda and call for agenda additions. Accept previous meeting minutes as modified: John Fuller moved to accept, seconded by Eric Hannah. Passed without objection.

Voting, price/pricing, Call for Patents - all presented in the usual, professional manner by the group chair. By way of information only, there were 26 present of which 17 believed they were voting members and 9 were convinced they were not voting members.

Review of Action Items from previous meetings:

ACTION ITEM LIST (From July Meeting):

AI#1: Steve Bard - The subject of PHY register value preservation across power cycle events to be discussed at the next OHCI 1.1 meeting. [8/24: DONE - transfer to ACPI Working Group for resolution.]

AI#2 David Wooten - Will write up a description of how to implement galvanic isolation as a informative portion of (say) clause three. [8/24: Not yet done]

AI#4: David Wooten: Investigate the effect of phase shifted unique identifiers - specific to loop prevention. [8/24: Done- fixed, in the 0.80 draft]

ACTION ITEM LIST (From June Meeting):

AI#2: David Wooten will form the ballot review committee (BRC). [NOT YET DONE (must form a ballot pool first - IEEE will form the pool; David has sent the request to the IEEE)][8/24: Still in progress].

Presentations:

Copperheads - [Max Bassler]

During their meeting, they approved their July minutes. They reviewed the alternate 1394-1995 contact design so as to agree on wording for chapter four. The largest body of work was their third item: Review Chapter 4 Beta/Bilingual (page turner). the term "DS" will no longer be used - instead, the term "Legacy" (with a capital "L") will be used. There will be several off-cycle meetings in order to meet the October schedule: Sept. 20th in Chicago and (if necessary) October 5th in Las Vegas (just before the 1394 Trade Association conference).

The draft published on Sept. 20th is the revision to be submitted to Eric Hannah for inclusion in draft revision 0.909 of the IEEE P1394b draft specification.

The interface mating geometry will be updated to show the matting channel and key in the beta only socket and plug.

The question was asked with regard to the effects a "gender changer" would have on the electrical integrity of the interconnect (for example, a changer which connects to the bilingual socket on the back panel and a 6-pin socket on the other side of the changer).

Much discussion surrounding a suggestion from David Wooten that a statement be include din clause four that says something to the effect that the use of two such gender changers are not allowed and if a gender changer exists it must include as part of its manufacture words to that a effect. Further, a statement of disclaimer that the specification makes no claim that a single gender changer would work.

A straw poll was taken in which an overwhelming response was that a statement in the draft specification should be made that gender changers shall NOT be allowed.

Border Nodes - [Jerry Hauck]

No foil presentation (verbal report)… Simulation work is continuing continue. Things are fairly stable. Off cycle reviews are taking place. Theory of operation text is being developed that are a bit more descriptive than the 'C-Code'. The 'C-Code' for border nodes is stable. There are four or five issues that need to be cleaned up - one of which is recovery from loss of synchronization which looks like will be resolved by just doing a bus reset (folks are encouraged to offer their opinion of other ways this issue may be resolved). No opposition to resolving this via a bus reset was brought forth in the meeting, therefore, the task group will resolve recovery from loss of synchronization with a bus reset.

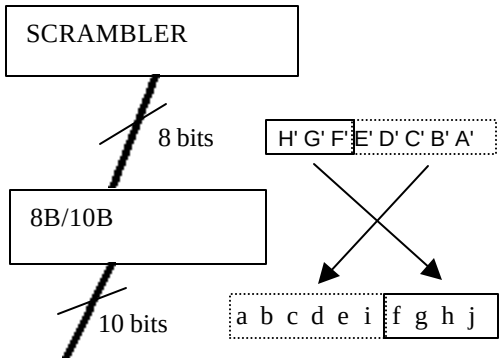
A second issue relates to the mechanism a naked border (PHY only) which has a D/S parent uses to regain control from the child beta cloud after each packet transmission. This is necessary to return control to the D/S parent cloud in case a cycle start packet needs to be sent. Since the border doesn't have the ability to predict cycle start arrival, it should grant one and only request from the beta cloud for each arbitration it wins from the D/S cloud. Although the "BORDER" request type has been reserved for this purpose, the exact machanism has not been captured.

The third issue is when a border node detects that a sub-action occurs, a few race conditions could occur. There are five proposed solutions for this. The committee will choose which to choose for resolution.

There is an issue if a link/PHY interface is reset, a canceled request must occur without causing the bus to hang.

8B10B Ordering - [Jerry Hauck]

The bit ordering that was chosen seems to have a latency issue as described here by Jerry:



As documented in the current draft, the first subblock of a symbol to be transmitted/received on/from the cable contains the least significant bit of the packet byte (Bit H' after scrambling). As such, P1394b effectively transmits in a least to most significant bit order. In contrast, Legacy D/S transmission and reception are performed in most to least significant bit order. When a packet flows through a border from a beta cloud to a D/S cloud, the bit order must necessarily then be reversed, requiring that a full 10-bit symbol be received before the first D/S bit is repeated. If, however, the most significant bit of a packet byte was mapped to the A' bit position, then the latency of a packet being translated from beta to D/S could be improve by ~30 ns since the bit repeating could begin immediately after reception of the first subblock.

Jerry will socialize this issue on the "B" reflector. Lack of any significant "scream" response will result in this included in the next draft (0.90).

BOSS - [Mike Teener]

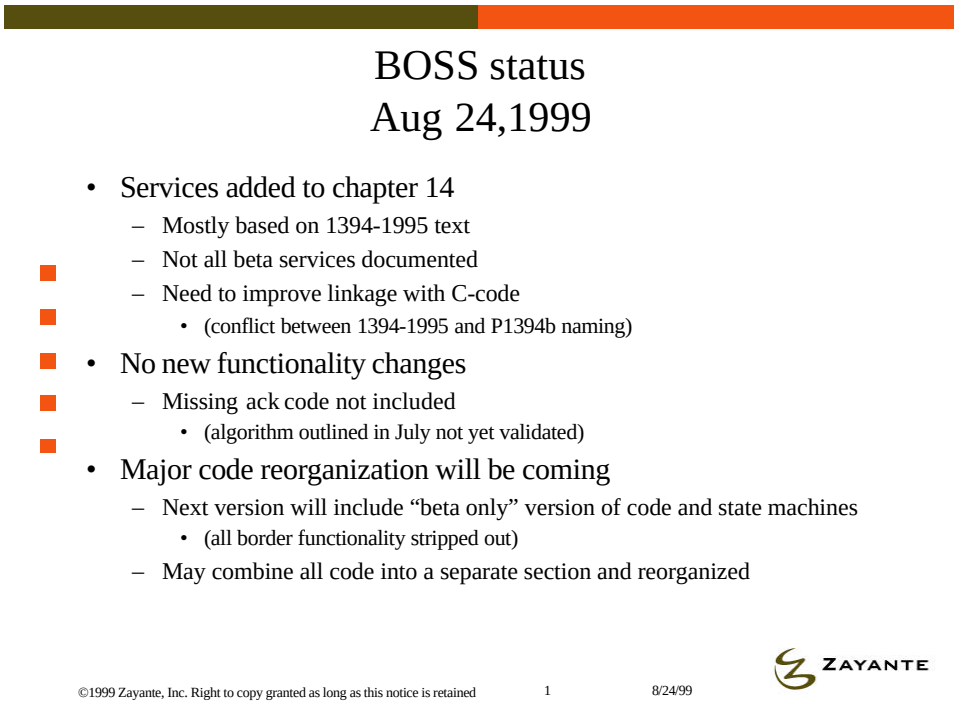
Clause 14 is looking good. Nothing has changed. Good stuff has been added. The services section informs the reader of the answer to the question: "What is this supposed to do?" Not all beta services are in the services section, however, they are in the details. Improvements with linkage to the 'C-Code" needs to take place. There have been no functionality changes.

The 'C-Code' is being addressed form a "readability" perspective. Mike may adopt Victoria Teng's (NEC) suggestion made at the page turner in Scotts Valley and consolidate all of the 'C-code' into one clause in the draft instead of being

distributed among the various other clauses in the draft spec. He would insert "links" into the text that would cross-reference to the appropriate 'C-Code.'

The Beta Only code will be stripped out and shown separately so one may easily distinguish it from all of the Legacy material.

The missing "ack" optimization is not yet in there. If it is NOT in the next draft, it will never be included. There never has been a commitment to include this (more of a "if we get it done we will include it, otherwise, it will not be in the draft" attitude toward it).



Port and 'C-Code' - [Colin Whitby-Strevens]

Colin now holds the pen for all of the 'C-Code'. There have been quite a number of changes since the 0.70 draft - just before the page turner meetings. The 'C-code' now aligns with the p1394a recirculation ballot (draft 3.0). The port state machine still had transitions that worked on DS arbitration states - something not valid when doing "B" arbitrations. These have been taken care of so that only port state transitions work on flags as opposed to explicit test of what is on the port. Colin has completed the work on Stand-by and restore. That work was the self-ID proxy mechanisms. That is now all in there. Two terms introduced: The "Uncle Node" (e.g. that node performing the proxy functions) and the "Nephew node" (e.g. that node which has been placed into standby - the leaf node, or the node which must have the proxy service performed for it).

The main thing that is coming soon is loop free build - nearly ready for this meeting but only about half is complete. It is going well. It will be in the 0.85 draft for the next draft page turner (available September 10th)

The 'C-Code' will be removed from all of the individual chapters and incorporated into a single chapter at the end.

Something to look for is a more robust connect debouce phase in the upstarts phase.

PHY/Link - [Sean Killeen]

Two page turners through this clause so far - one in Bristol on 8/4 and one in Scotts Valley on 8/11-12. Sean has called for silicon developers to submit comments on this clause as soon as possible so any issues that may exist may be resolved - SOON!

Something to look forward to is text in either chapter three or the PHY/Link section that explains PHY/Link use (events that occur given certain scenarios). If folks have a particular use model or documentation they believe should be included, they are encouraged to contact Sean or send e-mail to the PHY/Link reflector.

There will be some changes to the notifications the link receives from the PHY specific to the various events the Link may be aware of (standby/restore, suspend/resume, for example).

Some last clean-up with reconciliation with the 1394a draft 3.0 needs to be completed.

Folks are encouraged to provide feedback on the integrated PHY/Link model (the "PIL"). The electrical specifications are in sore need of completion. Tony Foster was not available to provide an update for the electrical specifications. There has been no feedback given on what is currently in the draft and what is in the draft has been there since draft 0.60 and has not been subjected to significant review.

Dave Thompson expressed a concern and need for further information regarding the protocols (timing diagrams would be good) as well as the side band signals (PHY Interrupt, LReq, and LinkOn).

SCAT - [David Wooten]

There are 61 issues. 27 are "Done" (meaning actual work was performed to resolve the issue); 8 are closed (meaning, after examining the issue, it was determined there really was no issue); 6 are "agreed in principle" (meaning, most of the work has been done and text is now being developed by one individual for inclusion in the draft); 7 are "Work in progress" (meaning, proposals are being

reviewed, corner cases are being examined, closure has not been achieved on the resolution); 13 are "open" (meaning, no proposals have been submitted, brainstorming is still occurring, the problem is trying to be bounded, controversy for the issue may be existent).

The OPEN and WIP issues were presented. Some issues had their status changed from OPEN to WIP and some WIP were changed to AIP. These will be updated and included in the next SCAT issue table to be posted on the ftp repository.

OPENS - [ALL]

Colin brought up the need to persist with the IEEE on the formation of the P1394b ballot pool. David Wooten responded that he had pinged upon them Colin encouraged David to do a bit more than a casual ping - in fact, the organization may require a close look at a brick-bat before progressive movement begins. David took an action item to pursue the IEEE a bit more vigorously.

"Task Group" sessions will convene at 1:30 PM this afternoon.

The plenary meeting was adjourned at 12:25 PM

IEEE P1394b Working Group Plenary Attendees (August 24, 1999):

	Name	Company	Email	Phone
1	Anderson, Bill	DDK	w.anderson@worldnet.att.net	408-980-8033
2	Bard, Steve	Intel	steve.bard@intel.com	503-264-2923
3	Bassler, Max	Molex	mbassler@molex.com	630-527-4490
4	Chen, Dao-Long	LSI Logic	dao-long.chen@lsil.com	970-223-5100 x5461
5	Farhoomand, Firooz	Panasonic	farhoomandf@panasonic.com	408-653-4059
6	Fuller, John	Microsoft	jfuller@microsoft.com	425-703-3863
7	Gardner, Mike	Molex	mgardner@molex.com	
8	Hannah, Eric	Intel	eric.hannah@intel.com	408-765-4441
9	Hauck, Jerry	Zayante, Inc.	jhauck@zayante.com	510-668-1006
10	Henehan, Burke	Texas Instruments	bhenehan@ti.com	972-480-2603
11	James, David	Sony	davej@lsi.sel.sony.com	650-494-0926
12	Killeen, Sean	SSL	sean.killeen@ssl.ie	+353 1 402 5700
13	Lopata, John	Molex	jlopata@molex.com	(630) 579-4110
14	Northey, Bill	FCI	northewa@bergelect.com	717-938-2119
15	Robinson, Moises	RocketChips	moises@rocketchips.com	512-658-4429
16	Saito, Tomoki	NEC	saito@ccm.cl.nec.co.jp	+81 44 856 2082
17	Shergill, Robbie	National Semiconductor	robbie.shergill@nsc.com	408-721-7959
18	Snyder, Bill	Judd Wire, Inc.	bsnyder@juddwire.com	302-731-9318
19	Teener, Michael Johas	Zayante	mike@zayante.com	831-461-4901
20	Teng, Victoria	NEC	victoria_teng@el.nec.com	408-969-2861
21	Thompson, David	Lucent	davethompson@lucent.com	610-712-2730
22	Ulrey, Renard	LSI Logic	renard.ulrey@lsil.com	970-223-5100
23	Watanabe, Yuji	Asahi Glass	y_wata@agc.co.jp	+81-45-374-8774
24	Whitby-Strevens, Colin	Zayante	colin@zayante.com	831-461-4948
25	Wooten, David	Compaq	david.wooten@compaq.com	281-518-7231
26	Zhou, Jian	Texas Instruments	jian@ti.com	972-480-2065