

Minutes of IEEE P1394c Working Group Meeting (4/27/2004)

The IEEE P1394c Working Group was hosted by Agere at their Lehigh Valley Central Campus in Allentown, PA on Tuesday, April 27, 2004. The attendees were:

Sam Khoo	Agere	skhoo1@agere.com
Mike Shinkarovsky	Agere	mshinkarovsky@agere.com
Dave Thompson	Agere	davethompson@agere.com
Tom Truman	Agere	ttruman@agere.com
Doug Williams	Agere	hiwayman@agere.com
Colin Whitby-Strevens	Apple	colinws@apple.com
Kevin Brown (conf. call)	Broadcom	kbrown@broadcom.com
Walter Hurwitz (conf. call)	Broadcom	whurwitz@broadcom.com
Les Baxter	Commscope	les@baxter-enterprises.com
Michael Johas Teener	Self	mike@teener.com

Agenda:

- 1) Welcome and introductions
- 2) IEEE Patent Policy – Chairman Michael Johas Teener reviewed the IEEE's patent policy.
- 3) Minutes from March meeting were approved by acclamation.
- 4) Review of old action items
- 5) 1394c patent issues
- 6) Synchronous Ethernet update
- 7) IEEE 1394 and GbE PC market survey
- 8) 1394c technical update
- 9) Negotiation update
- 10) 1394c draft 0.2 review and status
- 11) Next Meetings

Previous Action Items:

(Note – comments from this meeting are in red.)

No.	Name	Description	Opened	Closed
8	Colin	Run the error simulation without the robust encoding and compare to the current results. – Simulation was run but the data is not fully analyzed yet. (Not feasible due to data base changes at Apple)	9/23/2003	4/27/2004
26	Colin	Update the C-code and service specifications to match the new services model to correspond to item 25 above. 3/23/2004 -- Putting the changes into the simulation model first, then will do the C-code. (Done)	1/19/2004	4/27/2004
28	Colin	Run a simulation of the new root contention algorithm (Done – discovered that some numbers needed to be changed.)	1/19/2004	4/27/2004
30	Mike	Add language to the 1394c draft to specify that IEEE 802.3af powering will be used with both S800-T ports and 1394b S100 UTP ports. – (Still open)		
31	Mike	Send in tutorial request form to schedule a 1394c tutorial at the July 802.3 mtg., copy to Kevin 3/23/2004 -- Paperwork done, not mailed in yet. (Still open)	2/17/2004	
33	Mike	Follow up w/Bob Grow regarding technical liaison (No response yet.)	2/17/2004	

No.	Name	Description	Opened	Closed
34	Walter	Provide rough draft of alternate pair negotiation spec to incorporate into the next draft of 1394c. 3/23/2004 -- Almost finished. (Done)	2/17/2004	4/27/2004
35	Colin	Change 1394c spec to only update the physical ID when coming out of standby when there has been a bus reset and update the forced reset timeout to 1.6 seconds. 3/23/2004 -- will discuss at the Silicon WG next week. (Done)	2/17/2004	4/27/2004
36	Burke	Confirm characteristics of 1394b UTP signal detect implementation to make sure they will not be confused by 802.3 link pulses or fast link pulses. 3/23/2004 -- Colin and Mike will discuss w/Burke at the Shanghai mtg. (Still open)	2/17/2004	
37	Colin	Update Connection Management spec for dual-mode port support (Done)	2/17/2004	4/27/2004
38	Richard	Determine the value of the TPORT_MIN_SUSPEND_TIME variable. (Done)	3/23/2004	4/27/2004
39	Richard	Confirm that 750 ms is the proper value for TPORT_OK_HANDSHAKE (Done)	3/23/2004	4/27/2004
40	Mike	Distribute new draft of the 1394c specification before the April 27 meeting. (Draft 0.2 posted 4/26/2004)	3/23/2004	4/27/2004

Mike Teener reported on his 1394c tutorial presentation at the 1394 TA meeting in Shanghai. The session was attended by about 50 people who were very interested in IEEE 1394 and media networking.

1394c patent issues

At the MSC meeting a couple of weeks ago, Geoff Thompson brought up a potential patent issue regarding 1394c. Here is an email from Geoff describing the issue:

From : Geoff Thompson <gthomps@nortelnetworks.com>

Sent : Thursday, April 15, 2004 11:42 AM

To : les@baxter-enterprises.com

Subject : Re: 1394c

Les-

There are a number of patents that may be essential to 100BASE-T

Assurance letters have been provided to the IEEE regarding RAND for licenses for use in IEEE Std 802.3ab.

To the best of my knowledge, there have been no equivalent assurance letters provided regarding licenses for use for 1394c

Best regards,

Geoff

It is not clear what patents are involved or whether RAND letters are available for them. See action item 41 below.

Synchronous Ethernet Update

The supporters of synchronous Ethernet (Sync-E) are preparing for a Call for Interest at the July IEEE 802 meeting. Les Baxter pointed out that the current draft of the CFI presentation, which was prepared by John Gildred of Pioneer, contains the following chart:

Other Solutions Fall Short

- **1394c is Expensive and Limited**
 - Bridging IP/1394 and IP/Ethernet is costly
- **Wireless Still Needs Ethernet**
 - Routers often not integrated into the AP
 - Single AP often times not adequate
 - Multiple APs interconnect via Ethernet
- **HPNA and HomePlug are Still Unreliable**
 - Legacy wiring is temperamental at best
- **Coax is Not Consumer Friendly**

The first bullet item is objectionable for several reasons:

- 1394c is not expensive – it represents a very small addition to a GbE PHY.

- IP bridging between Ethernet and 1394 is not costly – it can be accomplished in a single-chip microcontroller.
- Since there is already a substantial installed base of consumer electronics using IEEE 1394, it would be best to define Sync-E so that bridging is as easy as possible.

IEEE 1394 and GbE PC market survey

Les Baxter presented the results of a brief survey about the availability of IEEE 1394 and GbE interfaces on PCs currently being sold by Dell, Gateway, and HP/Compaq. The results are summarized in the table below.

Type	IEEE 1394			GbE		
	Yes	No	%	Yes	No	%
\$ >= Median	23	4	85%	8	19	30%
\$ < Median	5	21	19%	6	20	23%
Notebooks	18	9	67%	5	22	19%
Desktops	10	16	38%	9	17	35%
All	28	25	53%	14	39	26%

Several points are worth noting:

- More than half the PCs in the survey (and about 2/3 of the notebooks) included an IEEE 1394 interface. This is a major change from 2 years ago, when virtually no non-Apple PCs supported IEEE 1394.
- A Gigabit Ethernet interface was provided on about ¼ of the PCs surveyed.
- It is expected that, over the next few years, both GbE and IEEE 1394 will be included on most PCs. Since 1394c effectively merges these two interfaces, there is a good opportunity for 1394c to be provided on many PCs.

1394c Technical Update

Colin Whitby-Stevens gave a technical update on several items.

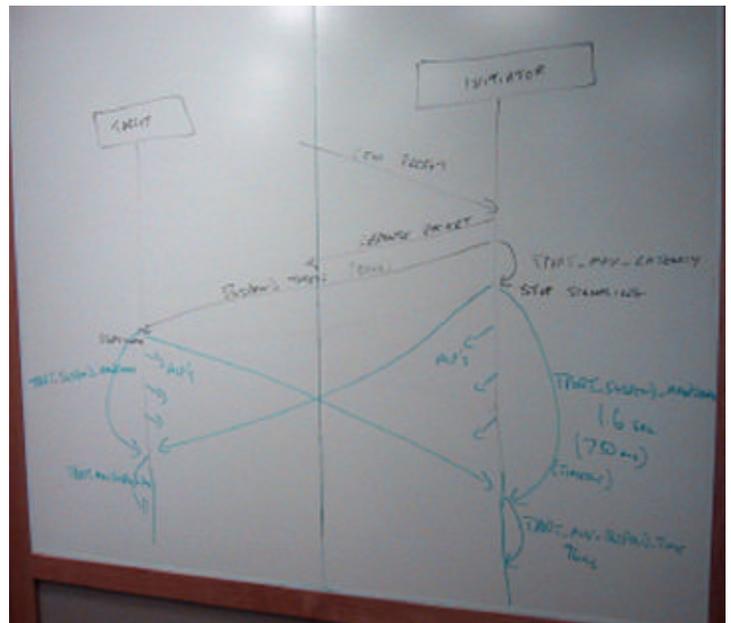
1) The suspend/resume timing was simplified, as described in an email from Colin on 4/13/2004:

For 1394c, we observed that the TPORT_OK_HANDSHAKE at the initiator needs to be 750ms + 1.6sec, a total of 2.3 sec.

To reduce this, we decided that we don't need the handshake at the initiator as shown in the last minutes. So the 1394 port implementing the suspend initiator can transmit the SUSPEND tokens and immediately follow these with a call to UNSELECT_PORT. It should then wait 750ms to ensure that TPORT_OK has been withdrawn.

Having seen that TPORT_OK has been withdrawn, the port should wait TPORT_MIN_SUSPEND_TIME before initiating a resume. This wait needs to be long enough to ensure that the handshake of APLPs is working well. For robustness, we decided on a figure of 100ms.

The new method is shown in the figure at right.

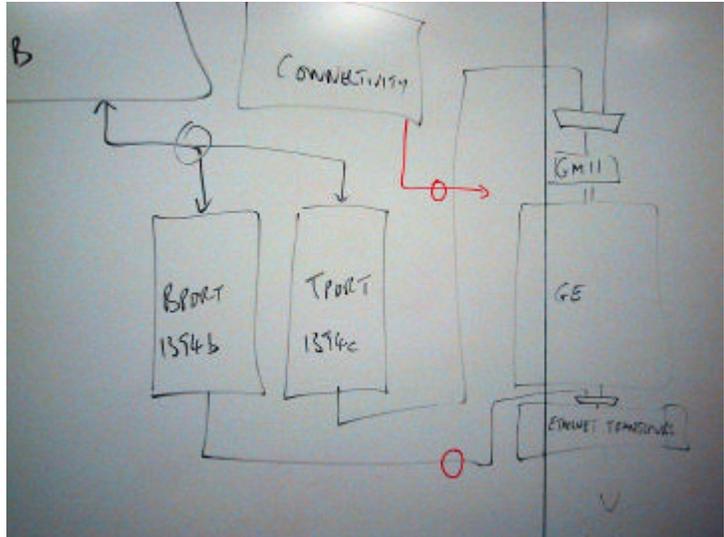


2) Dual-mode port specifications have been put into the new draft.

- 3) Abstract service definitions and use of the services in the C code have been updated to reflect that the GbE PHY controls the toning.

Negotiation Update

Walter Hurwitz identified several changes and issues – see action items 43 to 49. It was noted that a diagram was needed to show the relationship between the GbE PHY and the 1394 reconciliation sublayer, similar to the figure at the right. (Note – the upper left block in the figure is labeled “Arbitration”).



Draft 0.2 review and status (Michael Johas Teener)

Draft 0.2 of the 1394c specification was posted on the web site on 4/26/2004. This draft is fairly complete and stable, although it still needs some editorial work. A ballot will be scheduled for this fall.

New Action Items

No.	Name	Description	Opened	Closed
41	Les	Investigate the 1394c/802.3 patent issue	4/27/2004	
42	Les	Send email to John Gildred re: comments on the Sync-E CFI presentation	4/27/2004	
43	Walter	Make a list of the changes needed to section 14.11.2.1	4/27/2004	
44	Walter	Contact 802 committee and make sure the 1394 selector code is listed on the web site.	4/27/2004	
45	Dave James	Review OUI mapping in section 14.11.2.6	4/27/2004	
46	Walter	Add a statement about parallel negotiation for S100 somewhere in section 14.	4/27/2004	
47	Mike	Add a figure to explicitly show the signals (and any name changes) between the 802.3 PHY and the 1394 reconciliation layer.	4/27/2004	
48	Walter	Add a state machine to make sure that parallel negotiations both complete at the same time.	4/27/2004	
49	Walter	Define the format of ALPs and the protocol for using them.	4/27/2004	
50	Mike	Distribute candidate draft by July 12 for page-turning review at July 26 mtg.	4/27/2004	

Next Meetings

The schedule for the next few meetings is:

- Tuesday, June 8, 2004 at 10:30 AM, hosted by Broadcom in San Jose, CA.
- Monday, July 26, 2004 page-turning review @ South San Francisco 1394 TA Mtg.

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