

Minutes of IEEE P1394c Working Group Meeting (11/18/2003)

The IEEE P1394c Working Group was hosted by Apple in Cupertino, CA on Tuesday, Nov. 18, 2003. The attendees were:

Colin Whitby-Strevens	Apple	colinws@apple.com
Michael Johas Teener	Apple	teener@apple.com
Les Baxter (by phone)	Avaya	les@baxter-enterprises.com
Kevin Brown	Broadcom	kbrown@broadcom.com
Richard Thousand	Broadcom	thousand@broadcom.com
Walter Hurwitz	Broadcom	whurwitz@broadcom.com
David James	JGG	dvj@mit.alum.edu
Dwayne Escola	Panasonic	descola@psdc.com

Agenda:

- 1) Welcome and introductions
- 2) IEEE Patent Policy – Chairman Michael Johas Teener reviewed the IEEE's patent policy.
- 3) Approval of Minutes from October meeting – approved by acclamation. Note that Pascal Lagrange's email address was incorrect in the minutes – the correct email address is pascal.lagrange@crf.canon.fr. The minutes are posted on the 1394c web site (<http://grouper.ieee.org/groups/1394/c/>).
- 4) Review of old action items
- 5) IEEE 802 liaison
- 6) Autonegotiation
- 7) 1394c Draft 0.1
- 8) New proposal for standby mode (Broadcom)
- 9) Next Meeting

IEEE 802 Liaison

Kevin Brown reported on last week's 802.3 meeting. Bob Grow (chair of 802.3) noted that P1394c was approved and commented that "the project description continues to cause concern." Bob also noted that there was probably no objection to allocating a new selector code for 1394c. David Law (vice-chair of 802.3) is concerned that use of the 802.3 selector code for non-802.3 endpoints may cause problems with the 802.3 management operation. There was no action taken regarding liaison with the 1394c committee.

At the 802 plenary, Pioneer and Gibson hosted an informal meeting regarding a synchronous version of Ethernet for consumer applications. They think that 1394 devices don't have sufficient support of IP and don't have critical mass in the computer industry. They didn't specifically mention the Gibson MaGIC spec. Michael Johas Teener mentioned that using the MaGIC specification would require changes in all Ethernet hubs and switches.

At the 802.3 meeting, Broadcom made a presentation about a 2.5 Gb/s Ethernet proposal which was not approved. It appears that this pretty much slams the door on any work at rates between 1 and 10 Gb/s in the 802.3 committee. There was some discussion about the possibility of the 1394 committee continuing this work to support S3200 on UTP, possibly in conjunction with IEEE 802.17 to incorporate scalable data rates. This was put on the back burner for now.

Autonegotiation

There was a lengthy discussion about autonegotiation which involved both a review of the 802.3 meeting and brainstorming about possible ways we could proceed. Highlights of the discussion are listed below:

- The use of Message Code 9 for autonegotiation has not been officially rejected by 802.3, but it doesn't look too promising.
- If we define an "Other" selection code, it could indicate support for IEEE 802.3 as well as 1394. If an endpoint supports both, then it becomes a policy decision.
- Legacy 802.3 endpoints must be able to properly initialize when hooked to a bi-protocol unit.
- The biggest concern from the PHY viewpoint is how complex the state machine becomes – using MC9 is only a minor change to the PHY. Using a new selector code is potentially a much bigger change to the PHY. One proposal is to use the same state machine with the new selector code.
- Another possibility is to use MC9 to indicate that both ends should drop the link and reinitialize using the 1394 selector code.
- Yet another possibility is to send MC5 (OUI) after MC8. The user-defined bits can indicate that the endpoint also supports 1394. This again gets back to a policy decision if both endpoints support both 1394 and 802. The use of OUI's looks promising – Walter Hurwitz will investigate.
- The MSC already has an OUI assigned -- 00-A0-3F.

Here is the definition of the OUI from IEEE 802-3-2002:

28C.6 Message code #5—Organizationally Unique Identifier (OUI) tag code

The OUI Tagged Message shall consist of a single message code of 0000 0000 0101 followed by four user codes defined as follows. The first user code shall contain the most significant 11 bits of the OUI (bits 23:13) with the most significant bit in bit 10 of the user code. The second user code shall contain the next most significant 11 bits of the OUI (bits 12:2) with the most significant bit in bit 10 of the user code. The third user code shall contain the remaining least significant 2 bits of the OUI (bits 1:0) with the most significant bit in bit 10 of the user code. Bits 8:0 of the fourth user contain a user-defined user code value that is specific to the OUI transmitted. The fourth and final user code shall contain a user-defined user code value that is specific to the OUI transmitted.

New Proposal for Suspend Mode

Kevin Brown made a proposal for a method of initiating and exiting suspend mode using Alternate Pair Link Pulses (APLP's). Some changes to the proposal were suggested during the discussion. An updated version of the presentation will be posted to the 1394c web site.

1394c Draft

Draft 0.1 of the 1394c spec was posted to the web site on 11/18/2003. It will probably be updated after the next meeting, or whenever significant technical progress is made. Colin walked through the spec. Open issues include:

- Autonegotiation
- Dual-mode connections
- Signal Detect
- Link Pulse

Previous Action Items:

- 1) Michael Johas Teener and Colin Whitby-Strevens – First draft of the 1394c specification. (CLOSED – draft posted 11/18/2003)
- 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. (Still open)
- 9) Walter Hurwitz – evaluate the impact of using a new Selector Field instead of MC9 in the autonegotiation process. (Still open)
- 10) Michael Johas Teener – review liaison letter with Bob Davis and send to IEEE 802. (CLOSED -- no response from 802 yet.)
- 11) Colin Whitby-Strevens – post C code on the 1394c web site. [CLOSED – C code posted 11/10/2003]
- 12) ??? – investigate issues involved with supporting combined S800-T/S100-T ports. (Still open)

New Action Items:

- 13) Walter Hurwitz – invite the Gibson/Pioneer guys to our next meeting.
- 14) Kevin Brown – probe the 802 chair about the status of our liaison request.
- 15) Walter Hurwitz – look at how we could use the OUI to simulate MC9 operation.
- 16) Michael Johas Teener – get permission from the MSC to use their OUI as a identifier for a universal autonegotiation method.
- 17) Kevin Brown – review the low-power mode that is in the current 1394c draft and make proposals for modifications
- 18) Kevin Brown – investigate whether we can go straight to PAM-5 signaling on exiting from suspend mode, or if an interim state is required to make sure the master signals first.

Next Meetings

The schedule for the next 2 meetings was confirmed. A conference bridge will be available for the Dec. meeting.

- Tuesday, Dec. 16, 2003, 10:30 – 3:00, hosted by Broadcom (San Jose, CA)
- Monday, Jan. 19, 2004, 8:30 – 12:30, in conjunction with the 1394 TA Meeting (Kona, Hawaii)

Prepared by:
Les Baxter
732-212-1400
les@baxter-enterprises.com