

**IEEE P1394.1 Working Group**  
**AGENDA**  
*Thursday, March 29<sup>th</sup> 1998*  
*Tempe, Arizona*

Chair: dicks@lsi.sel.sony.com  
Editor: pjohansson@aol.com  
Secretary: please.volunteer@your-amaail.com

0. **Tutorial Session** (not part of official meeting)
  1. **Administrative** (1:00 PM)
    - a) Minutes of 1/26/98 meeting
    - b) Status of PAR revision request
    - c) Update of meeting Schedule
    - d) Status of New reflector
  2. **Technical topics**
    - a) Tree Configuration (Subrata Banerjee)
    - b) ISO Stream Setup & Release (Subrata Banerjee)
    - c) Follow-up to the cycle timer synchronization proposal (Takashi Sato)
    - d) Isochronous owner observation (K. Toguchi)
    - e) Net cycle master selection (M. Ueno)
    - f) Bridge manager selection during net configuration (M. Ueno)
    - g) Proposals in consideration of wireless (T. Sugita, H. Hiraiwa, M. Akahane)
    - h) Command based model
    - i) Isochronous stream setup/teardown/recover after reset
    - j) Review list of technical work remaining, schedule the tasks
  3. **Assignment of action items**
  4. **Future meeting dates** (all co-located with P1394b)

04/27-28	Mon-Tu	Newport Beach, CA.
06/9-10	Thu-Fri	St. Petersburg, FL.
07/15-16	Wed-Thu	Bath, UK
08/20-21	Thu-Fri	Portland, OR.
09/08-09	Tu-Wed	Chicago, ILL.
10/14-15	Wed-Thu	Maui, HI.
  5. **Wrap-up**
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**IEEE P1394.1 Working Group  
Minutes  
Thursday, March 19, 1998  
Tempe, Arizona**

Sign-in sheets facilitate voting requirement validation (must attend two out of the last three meetings to qualify for voting privileges). Attendants present encouraged to indicate their attendance by either adding their name to the list being distributed or by placing a check mark in the appropriate column in the row in which their name resides.

Handouts available at meeting: Minutes from previous meeting, Agenda, Remaining Technical Work, Meeting Schedule, Administrative information, Information for the meeting in Bath, UK, status report to MSC, E-mail thread between Dick and David Wooten regarding adjustment of cycle timer by cycle start.

Call for agenda additions: Agenda modified to move 2a through 2c to the end of the Technical topics. Tree configuration and ISO stream setup and release were added (the agenda above has been modified to reflect these changes).

Call for approval of last meetings' minutes: David Wooten moved to accept. Second by Steve Bard . Passed unanimously.

Project Authorization Request (PAR) status: Completion extended to 1999.

International Participation Fee: Dick has not been able to find anyone at IEEE to give any details about this. MSC indicates that it is dependent upon the individual participants to pay the annual \$300 fee. When Dick becomes aware of additional information, he will deliver it to the group.

Reflector Status: The IEEE reflector is not yet set up. It will be soon. To sign up for the current P1394.1 reflector, send a private e-mail to [bob.snively@sun.com](mailto:bob.snively@sun.com).

Individuals intending to attend any particular P1394.1 meeting is encouraged to send an e-mail to the host of the meeting so indicating their intent to attend. This enables the host to more accurately manage meeting logistics.

Individuals intending to deliver presentations at any particular P1394.1 meeting are encouraged to provide (to the chair) an electronic soft-copy (on diskette) for use in posting to the ftp repository. Presentations cannot contain any confidential markings or data. Presentations should use only western language fonts. If a presentation cannot be delivered in PDF format, then it should be provided in the native format of the application used to develop the presentation (Microsoft Word '97 is the first choice format after PDF).

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Agenda item 2a: "Tree Configuration"

Subrata Banerjee ([sub@philabs.research.philips.com](mailto:sub@philabs.research.philips.com)) delivered a proposal on eliminating loops in a bridged environment.

Refer to the ftp repository for a more clear presentation of this topic - both the animated power point and a "still image" PDF are available for download (<ftp://ftp.symbios.com:/pub/standards/io/1394/P1394.1>).

The entire presentation is based upon the assumption that the bridge is the actual "bottleneck" between bus interconnect. Bandwidth is the first order base for deciding on establishing a connection from one bridge to another. In an instance where bandwidth on two (or more) possible connections exist, delay will be used as the second order basis for deciding which bridge to bridge connection will be chosen.

#### Agenda Item 2b: "ISO Stream Setup & Release"

Subrata Banerjee ([sub@philabs.research.philips.com](mailto:sub@philabs.research.philips.com)) delivered a proposal on Isochronous stream packets handled by the bridge. A PDF document for this presentation is available for download from the ftp repository (<ftp://ftp.symbios.com:/pub/standards/io/1394/P1394.1>).

Prior to this presentation, examination of the type of ISOCH data was never done unless the address ID field was for the bridge - the bridge simply passed the data to the addressed node on the bus.

#### Agenda item 2c: "Follow-up to the cycle timer synchronization proposal"

Takashi Sato (Philips) delivered a review and follow-up presentation from the one he gave at the January meeting. The presentation is available for download from the ftp repository (<ftp://ftp.symbios.com:/pub/standards/io/1394/P1394.1>).

This presentation led to several hours of discussion and was continued into the next day's agenda.

David Wooten led a rather lively discussion against the need for adjustment registers and software involvement of making really gross time adjustments and the usefulness (or ability to accomplish the task in a timely fashion). The support for "go faster" "go slower" or "stay course" is of value.

## **DAY TWO - 25 in attendance**

#### Agenda item 2d: "Isochronous owner observation"

Kazunobu Toguchi (Sony) delivered a presentation which discussed a problem associated with the accidental disconnection of an isochronous channel owner and the subsequent release of resources allocated to that owner.

The problem comes with two parts. The first is detection of the disconnection of the isochronous owner, the second is the release of the resources.

Currently, there is no mechanism in existence which investigates from time-to-time) if an isochronous owner exists in the net or not.

The concept of a "net observer" was proposed. The "observer" would be responsible for determining whether an isochronous owner still exists on the net.

When the observer detects that the owner no longer exists, it needs to see that the resources are released via some "proxy" method (since the original owner is no longer available to release the resources).

The proposal is that the observer begins "observing" (looking for) notification from the isochronous owner when it receives RESET\_NOTIFICATION . No notification will trigger the observer into the process of performing the "proxy resource release" procedure.

The isochronous owner whose local bus has experienced a bus reset would be required to send notification to the net observer.

A register field is required to implement this. Basically, an owner\_status field which has a value of zero when the existence of an isochronous owner cannot be confirmed and a value of one when it can be confirmed.

In addition, a owner\_bus\_ID field (new) is associated with the owner\_status field.

These two new fields should be in a register array (such as the STREAM\_CONTROL registers) so as to allow an observer to investigate as many owners as there may be in the net.

The owner\_status field would be updated to the correct value after each bus reset.

The presentation is available for download from the ftp repository (<ftp://ftp.symbios.com:/pub/standards/io/1394/P1394.1>).

John Fuller expressed support for resolution of the problem and suggested the portal be the owner.

Peter Johansson indicated that this is analogous to local bus topology changes.

Dick Scheel discussed further the concept of a portal acting as a proxy for cross bridge network topology changes.

It was suggested that a portal might assume ownership to "refresh" assignment of allocated resources and if the refresh does NOT occur, the resources would be re-allocated.

It was considered as to whether IEC 61883 protocols should be considered to assist in resolution of this matter.

A call (plead?) for a volunteer to investigate into IEC 61883 bridge usage PCR model - as is the typical case, Dick was FLOODED with a barrage of hands eager to perform this task

(NOT!). David Wooten inquired whether a reflector existed in which IEC 61883 type folk "hung-out" - perhaps our "pleading" could be addressed. No one in the group knew of one, so it was suggested to take our begging request to the more prolific 1394 reflector community. With the LACK of affirmative acceptance for this Action Item from any of the participants, Dick Scheel took ownership to take the plead into the broader 1394 community.

Agenda item 2e: "Net cycle master selection"

Masatoshi Ueno delivered a presentation which discusses the issue of net cycle master selection on an isolated bus when a bridge to the bus is not able to forward isochronous transaction packets.

Basically, the proposal was: when a bridge which can not forward isochronous transaction to an isolated net, the net cycle master should not be located on the isolated net.

Bridge manager should collect the feature constraints for each portal and, using this information, move the cycle master to a net bus which contains a portal capable of passing isochronous transaction packets.

It was brought up by the group that any portal is supposed to always propagate cycle master signaling - period. The basis for the issue, heretofore, has not been considered by the group to exist.

Agenda item 2f: "Bridge manager selection during net configuration"

Masatoshi Ueno delivered a presentation which discussed the selection of a bridge manager when multiple bridge manager candidates are available in a particular 1394 net topology.

Bridge manager selection problem:

There might be two or more bridge managers candidates in a 1394 bus net, but selection algorithm is not presented. This proposal suggested some ideas as how to solve the problem.

The bridge manager should be detected automatically (like plug-n-play). The most functional (or most 'intelligent') candidate should be selected as the bridge manager through the selection algorithm.

Place a selection algorithm into current configuration procedure. Suggest each portal have a new "Owner\_level" register and a new "busy field" in the "PORTAL\_CONTROL" register to avoid invalid writing to some registers.

During the configuration procedure, appropriate values must be written to some registers when programming a portal - in particular, the OWNER\_LEVEL and OWNER\_EUI registers may have previously been written to by another bridge manager "candidate." If

they have been previously written to, a specific procedure may be executed to resolve the potential ownership conflict.

The OWNER\_LEVEL register reflects the capability of a bridge manager candidate and is used in conjunction with the OWNER\_EUI register to determine which candidate has the best capability as a bridge manager. If OWNER\_LEVEL of all candidates are the same, OWNER\_EUI is used to determine which shall become the manager.

The "busy field" in the PORT\_CONTROL register offers a method by which illicit writing to the register can be prohibited during the net configuration process.

A question from the group: "Why is the 'position' in the net topology of a bridge candidate not taken into account in the proposed algorithm?" There should be a "trade-off" portion in the algorithm which positions 'net position' against bridge manager "intelligence."

Peter Johansson questioned the value of a new "Owner\_level" register when considering how bridge portal ownership is created. Bridge manager candidates "fighting" over portal ownership must be able to be in communication with each other if the question of portal ownership is to be resolved.

A problem with exists when one bridge manager is set up in a net topology and becomes the owner of certain portals. Later, another "more capable" bridge manager is attached to the net topology and takes ownership of portals owned by the previous bridge manager. How does the initial bridge manager know and understand that it has lost ownership of portals so that it will not "reprogram" registers that were altered by the new bridge manager.

-- End of presentation

A discussion, just prior to lunch, ensued in which process and protocol of accepting or rejecting proposals was discussed. It was suggested that 'voting' on presentations at the time of delivery was not necessarily a good idea. Perhaps a better idea would be to, as a general rule, have the presentation available on the ftp repository and the group take an opportunity to review and discuss the material and, perhaps, take the issue of vote at the next meeting. It was discussed that presenters should be encouraged to deliver their material for posting prior to the meeting (two weeks?). It was further encouraged that, when possible, presenters have their material mature enough for dropping into the draft specification.

#### Agenda item 2g: "Proposals in consideration of wireless"

T. Sugita, H. Hiraiwa, and M. Akahane delivered a presentation to consider wireless bridging.

Opportunity for wireless in 1394; Proposals: 1) Loose coupled bridge; 2) Sub-net Architecture a) addressing scheme; b) routing scheme; c) Net management software

Wireless as a new media; Cable (twisted pair); POF; Coaxial (?); Wireless: 1) Implement wireless without significant impact to the current specifications; 2) need clear and neat solution.

Possibility in P1394.1 with minimal modification without describing "wireless" specification.

A wireless system overview illustration was provided In which each room contained a "wireless" transceiver. The transceiver is "cabled" to the home wiring in the walls of the home.

Hurdles for wireless: Unexpected disconnection; Transmission errors; "Bus" may not be achieved: 1) all the nodes may not be seen directly; Limited frequency resources: 1) bandwidth limitation; 2) efficient use of frequencies required.

Implementation plan: To guarantee the transparency to IEEE 1394, wireless system need to be defined as 1394-1394 bridge; Wireless environment is Bridge Inner Fabric from cable IEEE 1394 point of view.

A "bridge architecture" (logical 1394 to 1394) wireless system illustration was presented.

Implementation as Bus vs. Fabric: Bus causes discrepancies such as: 1) requires a new environment other than cable or back-plane; 2) does not allow "delay"; 3) Bandwidth acquisition depends on wireless path; Fabric requires: 1) to support portal disconnection; 2) multiple portal implementation

Proposal 1: Loose coupled Bridge: Define Two Type of Bridges: 1) Tight coupled bridge: 2-Portal; a) conventional bridge between busses; 2) Loose coupled bridge: with multiple portals; a) supports disconnected state; b) covers even distributed bridge (ex. located in separate room)

Why multiple portals? Multi-portal solution is simpler; reduce the load of: a) isochronous owner; 2) Bridge manager; Wireless routing is concealed in multi-portal solution.

### Agenda item 3: Assignment of action items

Dick Scheel: "Broadcast" a plea on available 1394 reflectors for IEC-61883 intelligence to step forth and assist with providing information which may prove useful in resolving the "surprise" disconnect of an isochronous owner and the need for subsequent resource de-allocation.

### Agenda item 5: "Wrap-up"

Dick reminded presenters to submit electronic, native format, copies of their presentations to him for posting to the ftp repository. In addition, if a presenter is desious to have the working group accept their proposal to be included in the draft specification, then the presenter should prepare "draft ready" material for presentation to the group. The

material should be provided to Dick prior to the meeting in which it is to be discussed. A two week previous availability was suggested.

Dick "briefly" presented the paper (handout) which listed a number of "Technical Work Remaining" items. Comment was solicited from the group - for which none came.

Dick "opened" the floor for open and informal discussion of the remaining agenda items. This discussion was not captured due to the informal and unstructured nature in which it occurred. It was kind of like trying to capture multiple hallway conversations going on all in parallel.

Meeting was adjourned around four-ish PM.

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Administrative information of interest:

FTP Repository: <ftp://ftp.symbios.com:/pub/standards/io/1394/P1394.1>  
Reflector: [p1394.bridges@sun.com](mailto:p1394.bridges@sun.com) (maintained manually by [bob.snively@sun.com](mailto:bob.snively@sun.com) - soon to change to an IEEE-hosted address)

[\*\*\*\* Later note: now converted to [stds-1394-1@ieee.org](mailto:stds-1394-1@ieee.org), administered by majordomo \*\*\*\*]

Conventions used in the FTP Repository:

BRnnnRrr.pdf - general documents

Where:

nnn = document number assigned by the Secretary  
rr = revision level of the document

Mddmmmyy.pdf meeting minutes document

Where:

dd = day of the meeting  
mmm = month  
yy = year

Dvv\_rr.pdf Working draft of the standard

Where:

vv = version level  
rr = revision level

Current draft = D00\_03.pdf



Attendees

Name	Company	Phone	Email
1. Alistair Coles	HP Labs	+44-117-922-8750	anc@hplb.hpl.hp.com
2. Claude Huss	Matsushita Electric Works	650-237-2366	claudio@ca.mew.com
3. Daisuke Hiraoka	Sony	+81-3-5448-4603	dai@sm.sony.co.jp
4. Dave LaFollette	Intel	408-765-2587	dlafolle@mipos2.sc.intel.com
5. David Wooten	Compaq	281-518-7231	David.Wooten@compaq.com
6. Dick Scheel	Sony	408-982-5834	dicks@lsi.sel.sony.com
7. Eric Deliot	HP Labs	+44-117-922-9539	ed@hplb.hpl.hp.com
8. Firooz Farhoomand	Matsushita	408-653-4059	firoozf@ix.netcom.com
9. Hisaki Hiraiwa	Sony	+81-3-5448-5420	hira@wcs.sony.co.jp
10. Jerry Hauck	Intel	408-765-5528	jerry_hauck@ccm.sc.intel.com
11. John Fuller	Microsoft	425-703-3863	jfuller@microsoft.com
12. John Ta	Silicon Systems Inc.	714-573-6957	John.Ta@tus.ssi1.com
13. Kazunobu Toguchi	Sony	+81-3-5448-5615	togu@av.crl.sony.co.jp
14. Masa Akahane	Sony	+81-3-5448-5420	akahane@wcs.sony.co.jp
15. Masatoshi Ueno	Sony	+81-3-5448-5615	ueno@av.crl.sony.co.jp
16. Patrick Yu	NEC	408-588-5436	patrick_yu@el.nec.nec.com
17. Peter Johansson	Congruent Software	510-531-5472	pjohansson@aol.com
18. Peter Munguia	Intel	602-554-9406	pmunguia@sedona.intel.com
19. Philippe Boucachard	Canon CRF	+33-2-99-87-68-73	boucachard@crf.canon.fr
20. Richard Churchill	Compaq	281-514-6984	richard.churchill@compaq.com
21. Steve Bard	Intel	503-264-2923	steve.bard@intel.com
22. Subrata Banerjee	Philips Research	914-945-6129	sub@philabs.research.philips.com
23. Takashi Sato	Philips Research	914-945-6099	txs@philabs.research.philips.com
24. Takehiro Sugita	Sony		sugita@wcs.sony.co.jp
25. Tomoki Saito	NEC	+81-44-856-2082	saito@ccm.cl.nec.co.jp
26. Yoshi Sawada	Yamaha	408-467-2356	ysawada@yamcorp.com
27. Yoshikatsu Niwa	Sony	+81-3-5448-4603	niwa@sm.sony.co.jp