

IEEE P1394A Meeting Minutes
October 20-21, 1997
Maui, HI

Chairman: Peter Johansson
Secretary: Prashant Kanhere

Peter started the meeting at 8:45am. After the usual introductions, Peter talked about the International Participation Fee (IPF). He told the group that the MSC has informed him that we have to start collecting the IPF which is capped at \$300 per participant per year for all the standards bodies that they participate in. Peter Johansson mentioned that from next meeting onwards we will collect \$20 per meeting day per individual until each individual has paid \$300 for the year.

Dave Wooten moved and John fuller seconded to approve the minutes of last meeting. Approved unanimously.

Old Action Items:
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3.13 PHY electrical (Eric Hannah)

New Business:
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6.6 Power class in self-id [Johansson]
6.7 Cycle accelerate / decelerate (Hauck)

OLD ACTIONS:
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3.1 and 3.2 carried over to next meeting.

3.3 closed. Mike is no longer with Apple, however Jerry mentioned that this item is not an issue.

3.4 SCAT published. Copies provided

3.5 Apple patent statement. (Anderson)
carried over

3.6 Revised 4-pin cable / connector, isolation (Bassler et. al)

Max has completed the diagrams. Some details may be needed. Peter Johansson to add to the draft by next meeting.

3.7 SCAT

Except 51 and 80 all scat items have been added to the draft by PJ. Items 51 and 80 are carried over.

3.8 All items deferred till next weeks' PHY design review

3.9 Annex C modifications (Dave Wooten)

Deferred till later in the meeting. See below

3.10 Annex K modifications (Brunker)

Carried over to next meeting.

3.11 LinkOn specification (Bennett/Hauck)

Jerry presented Joe Bennett's LinkOn Spec document and the need to describe some of the timings involved in the interaction of Link On event and LPS assertion for both direct and isolated modes. There was extensive discussion and the consensus was to discuss this issue more in the PHY designers review. Richard Baker pointed out that the current spec does not specify the behavior when the "direct" pin is '0' indicating that the PHY and Link is connected using isolation mode. Peter Johansson noted that we should specify the behavior of signals on the PHY Link interface in the case when Direct pin is '0'. Richard Baker took the action to come up with a revised proposal for the LPS timings and also a proposal that defines the behavior when the "DIRECT" pin is at logic '0'.

Another point that came out of this discussion was that if any information sent in the self id packet is changed then the software should issue a bus reset. since the rest of the system does not get informed about the changes Peter Johansson said that he will make this editorial change in the draft.

3.12 Suspend / resume editorial (Johansson)

carried over to next meeting

OLD BUSINESS:

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4.1 Suspend / Resume (Dave Scott)

Dave presented the updates to his Suspend / Resume presentation from the last meeting in Natick. He also showed some examples of the how the port disable process would work in a given topology. His presentation will be posted on the web site.97-061r1

4.2 Transaction integrity safeguards

Discussion on no snoop/spoof and its impact on devices such as protocol analyzers. David Instone suggested that the note in paragraph 9.22 be changed to explicitly include protocol analyzer devices. Peter suggested that the note be deleted entirely since it really doesn't say much. The consensus was to remove the note.

4.3 Self ID problems (Fasano)

Deferred till the PHY design review since Lou Fasano was not present.

4.4 Vp relaxation (Wooten)

Steve Bard took the action to come up with a spec for a maximum resistance between two ports and maximum per cable power loss. See below.

4.5 Physical configuration limits (gap count) (Peter Johansson)

Should there be any restrictions on the topology given that we have the ability to measure the delays using PHY pinging as long as the gap count of 3F would work? Should we have a maximum per cable power loss? The consensus was that we should have a spec that will cover this. Steve Bard suggested that the Power Distribution group should discuss this issue and Steve took the action to come back with a proposal. 4.5 is closed and this action got moved to 4.4

4.6 Split timeout (Johansson)

Agreed in principle in Natick and the revised text, 97-050r1, was posted for two weeks without comment. Editor to put in next draft.

4.7 and 4.8 got carried over.

4.9 LPS timing (Richard Baker)

Richard presented his comments on the language in the current draft section 5.0 page 36. Richard proposed changes to the timing included in the current draft. He also mentioned that we will need to have a separate discussion on these timing requirements for the isolated case. He also

proposed that upon resuming normal operation if the PHY is not idle then it drive Ctl = receive and Data = 'hF until the internal state is idle, then switch over to Ctl = idle. Bill Duckwall suggested substituting the "internal state" with "PHY-link interface state". It was also pointed out that the spec should explicitly state that if LPS is de-asserted all outstanding requests are assumed to be cancelled.

4.10 Backplane Operation (Stephen Finch)

Steve proposed that we add a clause to section 5 stating that this section covers only S100, S200 and S400 speeds and for a description of the backplane functionality at S25 and S50 the user should refer to the 1394-1995 spec. Peter Johansson mentioned that section 5 covers the backplane functionality and all the necessary information has been included but some editorial changes may be required in describing the backplane functionality. Peter took the action to make these changes in the next draft.

Steve also proposed that the language requiring D(0:7) in the link be changed to make only D(0:1) to be mandatory. Joe Herbst seconded. There was no discussion. Peter Johansson pointed out that this proposal was not in compliance with the two week requirement and if anyone wanted some more time to review it we could defer this to next meeting. Dave Wooten requested more time to review this item and it has been deferred to the next meeting.

Peter took the action to add language stating that the link only needs to look for data-on indication on data bits 0 and 1. The PHY should send data-on all the bits that it implements. (depending on the PHY speed)

4.13 Shared NODE_IDS register

Peter proposed that we add language that all the nodes on a bus have the same bus_id field.

Dave Wooten proposed and Steve Finch seconded that 97-049r0 be incorporated in the next draft.

No discussion

Motion passed unanimously.

3.9 Annex C (Dave Wooten)

Dave presented his modifications to Annex C, 97-073r0. Peter moved John F seconded. no discussion. passes unanimously.

3.13 Electrical Characteristics (Eric Hannah)

Eric presented his analysis and measurement on the current D/S protocol on copper. He showed the results of his SPICE simulation on a short (18") cable and the impact of rise and fall time on the amount of ringing on the signals. He showed that at 200ps rise/fall time there was considerable ringing whereas at 500ps there was no ringing. He also recommended that the PHYs should have a receiver sensitivity spec. He recommends 75mV +/- 20%. There was extensive discussion on this item

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5.0 SCAT Review and Closure

33. Dual Phase Retry

Decided after feedback that this is required and Peter Johansson will prepare some clarification text by Nov 20th.

56. Carried over. will be completed by Nov 20

63. 1394/P1394a interoperability. Carried over until spec approval

76. Annex C. Agreed. Peter Johansson to include 97-073r0in the draft

78. Mandatory Vs Optional

Separate agenda item. See below

79 Tree ID proposal.

Carried over

82. Link ON: deferred to PHY design review

83. Total data prefix: deferred to PHY design review

85. Physical Configuration Limits

80. Isochronous bandwidth allocation.

John Fuller to explore and come up with a informative procedure.

New SCAT item:

PHY Designers to clarify Direct/Isolated behavior of SClk, LPS, LinkOn

52 Max bus hold: Jerry mentioned that the link does not know the timing by which the PHY gives grant to the link and because of this it may not be able to ensure max-bus-hold time. Action item to PHY designers review to clarify this issue.

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6.6 Redefinition of Power Class

New power class of 101 is being defined: 100 and 101 is essentially the same except that 101 does not repeat power. See document 97-032r4. After extensive discussion, the following straw poll was taken:

Should we craft a solution or keep 101 class reserved for future use.

Create a solution: None
Reserved for future use: quite a few

David proposed John seconded a motion to adopt 97-032r4. Passed unanimously.

Mandatory Vs Optional PHY vs. link
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1.0 All Discrete PHYs must have a PHY/Link interface

There was a lot of discussion centered around the question of what "compliance" means. We can have compliance at the cable interface, PHY/Link interface and the interface from the link to the outside world. The following four types of compliance levels were suggested:

Physical Compliance (cable connections etc..)

 Section 4
 Annex K

Cable Interface
 Section 6
 Section 7

PHY/Link interface

 Section 5, Section 6, Section 7

There was extensive discussion on this subject and the consensus was to continue this discussion on the reflector. Peter Johansson took the action item to post a proposal on the reflector describing the above.

3.5 Apple Patent Statement

Peter Johansson has an action to ask Apple regarding acceleration patents.

6.1 Retention of optional "caboose" packet (Bard/Johansson)

Motion: Colin moved and Dave seconded that we delete the caboose packet from the standard and move the info from the caboose packet into the PHY register set.

no discussion

Peter called the question

passed unanimously

6.3 Cycle too long indication (Jerry Hauck)

Jerry presented his analysis of the cycle too long condition as described in section 9.20 of draft 1.1 and the fact that it implied a requirement of a timer in the link that kept track of the interval between two cycle start packets. There was a considerable discussion on this issue with the consensus being that the proposal described in section 9.20 does not necessarily offer a clean way of recovering from a cycle too long condition. The conclusion was to remove section 9.20 from the spec.

6.5 Per Port Speed Mapping (Mike Brown)

Straw Poll: Should Mike Brown bring in a proposal to address this issue of per port speed requirement. Ayes have it!

4.1 Suspend / Resume Mandatory/Optional

Peter asked the question: is power management mandatory. Claude Cruz answered yes. Jim Gay said no. Colin talked about the effort that has gone in making sure that all "A" devices are interoperable with 1394 -1995. He compared the work load involved in ensuring interoperability between a 1394-1995 and 1394a with S/R (two new interfaces) Vs one for 1394-1995, 1394a with S/R and 1394a without S/R (five new interfaces). He further explained that making S/R optional might put a considerable workload on the 1394b workgroup.

Peter objected that assertions of logarithmic complexity for suspend / resume validation (were it to be optional) are based upon unexamined assumptions; some people believe that no more complexity is involved than in the verification of interoperability with existing 1394-1995.

Peter J pointed out that there are companies right now who are working on 'A' PHYs that does not include the S/R feature and the working group may get a push back if we chose to make the S/R mandatory. Gene Milligan voiced against making s/r mandatory since his company was working on a device that already has everything Michael Shinkarovsky voiced against making s/r mandatory since in his opinion making PHY reg read/writes is a lot easier than the full s/r implementation . Jim Busse spoke for making s/r mandatory in the specStraw Poll:

How many would like to make a decision on optional or mandatory: 23

How many would like to not make a decision: 17

No opinion: 9

Richard moved to make a suspend/resume facility mandatory Tom H seconded.

Steve Finch wanted to have a complete proposal to evaluate the technical details. He proposed a friendly amendment to table the motion until the s/r material is available in a single document. Richard rejected this as an unfriendly amendment. Steve moved to defer consideration until the next meeting. Farrukh Latif seconded. Jerry mentioned that without going into the details of the feature he would like to be able to decide today whether the feature should be mandatory or not Colin called the question on the motion to defer.

Yes. 13

No. 25

Motion to defer failed.

Colin called the question on the first motion.

Yes 33

No 8

Abstain 3

Opposing comments: Peter Johansson mentioned that the s/r facility is not universally applicable to all applications. Jim Gay voiced the same reason for his no vote. Kugao Ouchi

would like to get feedback from the PHY designers review before making his decision.

Steve Finch moved to adjourn the meeting. John Fuller seconded. Meeting adjourned at 4:30pm.

Action Items:

1. Richard Baker took the action to come up with a revised proposal for the LPS timings and also a proposal that defines the behavior when the "DIRECT" pin is at logic '0'.
2. Steve Bard to come up with a spec for a maximum resistance between two ports and maximum per cable power loss.
3. Peter Johansson to make editorial changes to clarify backplane functionality per discussion on item 4.10
4. Peter Johansson to clarify that link need only look for data-on on bits 0 and 1.
5. Peter to post a proposal listing features required for various compliance levels.
6. Peter to send query to Apple re. acceleration patents.

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