

IEEE p1394b
Standards Closure Action Team (SCAT)
Meeting
July 19 & 21 1999

19 July 1999

CHAIR: *David Wooten*
SECRETARY: *Steve Bard*
EDITOR: *Eric Hannah*

Action Items from this Meeting:

AI#1: Sean Kileen: The Standard Draft text needs to have a change for LREQ such that it contains a bit. The definition of which determines whether the request is beta-mode or indeterminate.

AI#2: Colin Whitby-Stevens: Must make certain that a multi-port node functioning as a leaf node and which is in standby will restore when a new connection is detected on one of its previously unconnected ports. In addition, if one of the ports were suspended and it resumes, the node restores.

AI#3: Colin Whitby-Stevens: Capture in the draft specification that the arbitration delay must be less than or equal to the data repeat delay. Table 8-14 in 1394a Draft 3.0 has been incorporated into the 1394b draft. However, it needs to be eye-balled and brought into ship-shape for 1394b (the "ship-shape" is the actual action item).

AI#4: David Wooten will make sure that Linux, Sun, Apple and Microsoft software folks using pinging to set gap count use of 1394a equations for determining the ping results.

AI#5: Steve Bard - Contact Erich Hannah with regard to the completion of Eric's action items contained within the SCAT Issues data base.

AI#6: David Wooten will socialize on the general "B" reflector the notion of removing per port error count registers. If there is a lack of a scream response, these registers will be removed prior to the 0.8 draft.

AI#7: Bivabasu will submit to Colin changes required to the UPSTARTS code based upon P1394a 3.0 code changes (submitted to Colin around August 11th - sooner if possible).

Action Items from the previous Meeting:

#1: Alistair has some work to accomplish prior to the next SCAT meeting (see SCAT Issues #37 & #42).

#2: Colin will begin investigating the issue of symbols which may be deleted. The goal is to insure FIFOs do not become empty when they are supposed to be repeating packets. The FIFO may become empty due to clock frequency differences and related quantization effects.

Terms for the unaware reader:

PIL Integrated PHY/Link silicon device

FOP Fan Out PHY

legacy link a link specifically targeted for use in 1394-1995 or 1394a environments (e.g. it does not contain any 1394b optimizations)

After a fair amount of friendly delay (during which a good amount of socialization took place), the meeting slowly began. We performed the traditional passing around of floppies and flash cards for distribution of previous meeting minutes, current draft of the standard and the SCAT issues table. We began with a look into the SCAT Issues table.

SCAT Issue #21 - The first A-OPEN left us with a conclusion that the group continues (and shall continue) to liaison with the P1394.1 group (bridges).

SCAT Issue #27 - David Wooten: Ownership of this issue has been given to Eric Hannah. Eric is doing a smash-up job of putting good words around Mike Teener's and Colin Whitby-Streven's foil presentation they delivered to the 1394 Trade Association Conference and the Nikei Conference.

SCAT Issue #36 - Sean Killeen: took some time as Colin, Sean, Mike and David discussed some of the finer points of GRANT.

Right now, the draft standard text states that an LREQ sets the mode for the request (e.g. legacy versus beta). This must be changed such that the new text for LREQ describes (defines) a bit that determines whether the request is beta or indeterminate.

Jerry Hauck stated that analysis shows that there is a requirement for an in-band LREQ. Sean Killeen says it will be in there (if it isn't already).

An additional SCAT issue was opened (#58) to further dissect this into smaller components (for quicker resolution).

SCAT Issue #40 - Colin Whitby-Stevens: The current (0.70) draft of the standard has the complete (and accurate) description, however, additional work remains: the constants and the 'C-Code' must be developed.

SCAT Issues #41 - Jerry Hauck: Is there a need for a delay greater than three quadlets in length? An informal solution is that a delay of two quadlets per PHY packet is quite sufficient and could be the solution. Sean Killeen put forth a proposal that a two quadlet delay between all packets should be the standard. Colin brought up the question: "But, what about my S100 CAT5 packet? It certainly seems a delay of two quadlets is an awful long time between S100 packets!" Further discussion on the proposal must be completed.

In deference to Max's need to attend the Copperheads task group meeting at 1:00 pm, and the fact that it was 11:25 AM, the floor was given to Max so that he could present the latest work on the beta/bilingual plug/socket (Proposal #3).

All Cables have TPB/TPA cross-over as a requirement. Max displayed a beta-to-beta (plug/cable/plug) diagram which did NOT have cross-over and the slide MUST be corrected.

Much discussion concerning galvanic isolation. Bottom line: implementers must be able to implement with complete galvanic isolation -there shall *not be* a requirement that frame ground between systems be electrically connected.

With regard to the "magic pin" - after much discussion, David suggested that we take the position that all cables shall be capable of S1600 and therefore, shall function at all speeds below S1600; further, the "magic pin" will be defined as "reserved for future cable standardization"

The "magic pin" had previously been targeted to provide the following:

- 1) No Connection (cable presence toning);
- 2) Legacy DS Cables (protocol)
- 3) Cable Speed:
 - a) S800
 - b) S1600
 - c) S3200
 - d) Future Cable Standardization

SCAT Issue discussion continued...

SCAT Issue #43 - Jerry Hauck: Work in progress (continuing).

SCAT Issue #44 - Max Bassler: Max will submit material showing all Beta/Bilingual cable plug/socket information for inclusion in draft 0.80 (available for discussion at the August meeting in Portland, OR);

SCAT Issue #45 - Colin Whitby-Strevens: DONE

SCAT Issue #46 - Sean Killeen: Two new status indications have been added; A modification of 12-11 will be made so that the link of a leaf node may be notified (upon restore) that a bus reset occurred while it was in standby.

SCAT issue # 48: Enabl_multi is required when a "B" PHY is designed to be compatible with an legacy link. Note: a "B" PHY with a parallel PHY/Link interface is not REQUIRED to communicate with a legacy link. Enab_multi shall be read/write if attached to a legacy link otherwise, it shall be read-only and permanently set on one. Enabl_accel will be needed by border nodes and bilingual PHYs. Enabl_accel does not seem to be needed by a pure beta node - though there has been no final decision as there may be issues with regard to starving cycle start.

SCAT Issue #49 - David Wooten: Clean-up portion is done, however, they are not preserved across PHY power-up cycles (e.g. they clear on power-up reset) - not a 1394b problem (probably the software stack will have to take care of this).

SCAT Issue #50 - Colin Whitby-Strevens: Subsequent to a lack of negative comment on the reflector, all Beta mode compliant PHY's shall report 2'b11 as their speed in their self-ID packet. This informs software that the speed code should be found elsewhere (e.g. this is a "B-PHY". Software (per 1394a) then examines MAX_SPEED. Since 1394b has defined per port speed values, MAX_SPEED shall be 3'b111, therefore, software must, if it is to determine the communication speed of the connection, must read the per port speed register for the connection of interest. This algorithm may be in conflict with the predominate shipping OS software stack.

SCAT Issue #51 - Jerry Hauck: Not done, but not forgotten

SCAT Issue #52 - Jerry Hauck: Not done, but not forgotten

SCAT Issue #53 - Jerry Hauck: There is 'C-Code' in place (in the draft) which endeavors to deal with this, however, Jerry stated that there appears to be a solution (as revealed in the simulations). It just is not known, yet, what the problems is.

Colin Whitby-Strevens and Mike Teener stated very clearly that B-Links are simpler.

A brief "break" from SCAT to discuss the logistics of the plenary meeting tomorrow and page turner meeting plans.

The page turner will be in Scotts Valley (hosted by Zayante) on August 11th & 12th. Colin will coordinate a page turner in the Bristol, UK area prior to the Scotts Valley meeting (August 4th). Alistair Coles responded with an affirmative response that HP will provide the logistics for the Bristol page turner.

Wednesday, July 21, 1999

An updated revision of the SCAT Issues table was distributed (it contained the updates from Monday's meeting).

The meeting progressed with an item by item review of each SCAT issue table entry. Those items in the SCAT Issues table with a status date of 7/21/99 were discussed to the point of either changing the status to AIP, DONE or OPEN. Those which remain OPEN were document in NEXT ACTION with steps necessary to bring the issue to AIP or DONE.

NOTE: We must capture in the draft specification (Colin Whitby-Strevens) that the arbitration delay must be less than or equal to the data repeat delay. The draft specification contains words similar to this - they simply must be word-smithed to REALLY say the correct thing for 1394b (the current words were crafted from table 8-14 in p1394a).

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