IEEE 1394.B "COPPERHEADS" COPPER INTERFACE WORKING GROUP MEETING

DECEMBER 3, 1997 Fort Lauderdale, FL

MAX BASSLER, CHAIRMAN
BILL NORTHEY, SECRETARY

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Purpose of the meeting was to organize the group of copper connector experts and interested parties; to establish our path forward in meeting the requirements of the core IEEE1394.b committee that established this working group; and to solicit proposals to that end.

Goal: Develop an IEEE p1394.b standard chapter for this new copper interface so that multiple sources can manufacture compliant products. Included are to be PCB footprints and cable assemblies, following the spirit of the 1394-95 format. Full backward compatibility to the IEEE 1394-1995 bus is to be maintained.

Charter: To identify and document the plug compatible (1394-1995, 6 ckt I/O) copper interface (connector and cable assembly) needed for 800-3200 Mb/s as defined as pIEEE 1394.b.

Product Requirements from Maui p1394b meeting are:

- Standard 1394-1995 I/O user friendly model with latching option
- Cost is very important for both computer + consumer interests
- Speed requirements are 800, 1600 + 3200 Mbs
    - Develop the IEEE1394-95 6 ckt I/O interface to operate at 800 +1600 Mbs with S3200 for possible future standards work
        - Possible new interface for S3200 Mbs
- Backward bus compatibility (Including speed signaling)
    - Plug compatible is a MUST for 800 + 1600 Mbs
    - Cable compatible- speed ratings + physical lengths

- Meet all standard electrical requirements and practice good known EMI/RFI construction
- Leverage work done in 1394-95, p1394a and 1394TA

Our guidelines are:

- Meet as often as possible to accomplish our task
- Follow rules of openness and fairness
- Adhere to IEEE policies (patents/licenses, etc.)
- All work and presentations will be managed by in soft-copy via our 1394b ftp site
- The standard will be written in Framemaker v5.5 and technical contributions should be done in a compatible format , such as Word
- The chairman or secretary in his absence can determine if work requested is out of scope and should be review by the larger p1394b group
    - An "Out of Scope Issues" list will be maintained by the secretary
- Work which can not be completed in timely manner will be dropped for future standards effort

Discussions:

- Max Bassler stated that we need to work with and be intermatable to the existing 6-pin Flat SMT connector as established in IEEE1394-1995.

- A “detect pin” may be necessary to identify to the PHY when a higher speed capable cable assembly is used for interconnection.

- There is a general consensus that S3200 will be marginal in performance for the combined interface (connectors & cable).

- Max Bassler will request a separate reflector for this working group at Zayante. John Hill offered to set this up if Max is unsuccessful.

- Voting - It was mutually agreed upon by those present that an individual must attend 2 of the last 3 meetings including the meeting at which a vote is taken in order to have voting privileges. Straw polls are allowed. Simple majorities expressed by those eligible voters present at a meeting constitute a ruling vote. IEEE rules apply with regard to voting as individuals, and not as corporate members. Block voting is not allowed. The secretary and/or chairman will maintain a voting eligibility list.

- The interpretation of the charter of the group is to write/rewrite chapter 4 of the standard; to determine changes to the 6-pin copper connector that will allow for S800, S1600, and possibly S3200, that will also allow for backward intermatability; to work with cable assembly lengths of 1, 2, and 4.5 meters; to identify characteristics for achieving the speed requirements from an interconnect standpoint; and to have everything related to the copper interconnect in place for ballot on the complete standard by the end of 1998 (tentative ballot timing).

Identified needs from the group (solicitations) for the next meeting January 6, 1998 are:

- Connector design proposals which meet the charter
- Cable material design proposals for making, with minimal changes, the current S400 material meet S800 and possibly S1600; and a material for S1600 and above
- Concept for detect pin(s) which could identify high speed/low speed cabling to the PHY
- Testing proposal for cable and connector
- EMI/RFI test proposal
- A review of the electrical section of the standard

Other discussions:

- It was established that the “Copperhead’s” committee could only be accountable for the signals from the leads on the connector, through the cable assembly, to the connector leads at the other end. To include the circuit board traces would be impossible since the circuit board manufacturers and designers affect this.

- Electrical performance must be maintained even when mating one manufacturers’ cables to another’ PC board connector. For this reason the performance of these two components must be specified and evaluated separately.

Out of scope issues list:

1. Detect pins and the impact on “Upstarts”
2. Electrical issues...need full definitions of all electrical parameters to be met.
3. Reflections reduction in interface and short cables (< 1.0 meters)
4. EMI/RFI testing recommendation (system makers)
5. 10 meters cable length

Action:

1. Max Bassler- Prepare a scope document for next meeting review (draft attached)
2. Group- Prepare presentations needed to address product requirements and request time to the secretary for inclusion on the agenda
3. John Hill- Bring a connector and cable glossary and be responsible for education

Meeting Schedule:
January 6, 1998 Houston (Afternoon)
February 10, 1998 California (Afternoon)

Re: Item 1 in Action list, Max Bassler submits the following (Scope). This is to be reviewed at the next meeting:

The scope of the copper working group of IEEE P1394.b includes:

- Create a IEEE format chapter for the p1394b connector and cable assembly for inclusion into IEEE p1394b standard
  - It will include all necessary drawings, charts and tables with performance and test criteria to allow multiple companies to produce compliant products.
    - To accomplish this task we will solicit technical contributions from all sources
    - Follow IEEE rules for patents and meeting rules.
- The above mentioned p1394b connector and cable feature set should include:
  - User friendly model based on plug compatible IEEE 1394-95- 6 ckt I/O with and without a latching option
  - Reasonable cost model is very important for both computer + consumer interests
  - Speed requirements- 800, 1600 + 3200 Mbs
    - Priority to address S800 + S1600

    - S3200 work may be deferred to future standards effort as it may require a new interface
- Backward bus compatibility (Including speed signaling)
    - Cable compatible preferred but not necessary
    - Physical length to include 1.0, 2.0 + 4.5 meter cables, a 10 meter cable will be reviewed for possible inclusion.
- Meet all standard electrical requirements and practice good known EMI/RFI construction
- Leverage work done in IEEE 1394-95, p1394a and 1394TA

end