

Minutes of T11.1 Ad Hoc meeting on HIPPI-6400 Optics  
August 5, 1997  
Honolulu, Hawaii

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### **1. Opening remarks and introductions**

The Chairman, Don Tolmie of Los Alamos National Laboratory, opened this meeting at 5 PM and thanked Paul Boulay and Hitachi Computer Products (America) for hosting this meeting. Don lead a round of introductions. The list of attendees is at the end of these minutes.

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### **2. Selection of secretary**

Steve Joiner volunteered to take the meeting notes. Don Tolmie will produce the final HIPPI-6400 Optical minutes separate from the other HIPPI minutes.

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### **3. Review / modify the draft agenda**

Draft agendas were distributed via e-mail before the meeting and hard copies were distributed at the meeting. The Eye-Safety item was changed to Jitter Discussion.

Don described the HIPPI web page at <http://www.cic-5.lanl.gov/~det/>, stated that the appropriate documents would be placed there, and encouraged people to pick up the documents before the meeting as extra documents would not be available at the meeting. Schelto van Doorn said that T11.2 was setting up their own reflector, and we should provide cross indexes to guide the user.

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### **4. Review optical portion of June minutes**

Item 11, the optical portion, of the June 9-10, 1997, HIPPI meetings in Seattle were reviewed. Joe Parker moved, and Greg Chesson seconded, to approve the optical portion of the June 9-10, 1997, HIPPI minutes as written. Motion passed unanimously.

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### **5. Review of old action items**

The action items pertaining to optical were reviewed:

32. Hansel Collins, Steve Joiner, and Dan Schwartz to come up with a pulse width distortion number for HIPPI-6400-PH table 9, or something equivalent, e.g., jitter. (Ongoing)
33. Don Tolmie to do an initial draft of HIPPI-6400-OPT. (Done)
34. Dan Brown to update the optical parameters table with the values agreed to at the June meeting. (Done)

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### **6. Jitter discussion**

Schelto van Doorn asked for clarification of the application environment, specifically in environments of copper-fiber-copper is there a re-timer assumed to be in the path? The answer was "no", but the copper portions of the link were considered to be only inches long, hence re-timing should not be necessary.

It was pointed out that copper repeaters could be used for semi-short links since copper distances were 50 meters. A repeater would use back-to-back SuMAC chips and cost on the order of \$20-\$25k each with the cable. Joe Parker pointed out that a copper repeater would also have operational and installation problems. Hence, there was more motivation for a fiber implementation that could go 200-300 meters.

Another possibility is to use half-speed, i.e., 500 Mbaud, with 23 channels wide. This widens up the bit period and decreases the jitter problem, but the wider path adds more components. This couldn't fit in a single ribbon or connector, it would be in two 12-channel units, but this did not seem to be a problem.

Steve Joiner stated that the non-constant CLOCK signal (it glitches during training sequences) made it difficult to use a PLL or SAW to generate a constant

CLOCK at the receiver. With the current parallel signal set we end up with the CLOCK signal's jitter being added to the DATA signal's jitter. The skew recovery circuitry operates in discrete steps further eating into the eye; turning it off may help. Steve is continuing to look for a recovered clock solution that can survive the training sequence. Greg Chesson questioned the possibility of a chip outboard from SuMAC that would do the CLOCK recovery and initial skew compensation. Another possibility is improving the clock tolerance from 200 ppm to 100 ppm.

## **7. Open Fiber Control (OFC)**

Dan Schwartz said that he is circulating his OFC C-code to vendors for review. It was suggested that we develop two versions of the spec, one with OFC and one without. We should be able to chose between them at a later date when the options are more clear cut.

## **8. Review HIPPI-6400-OPT Rev 0.0**

Dan Brown made a presentation concerning recommended changes to Rev 0.0. Each change was accepted by the group, and recorded by the Technical Editor (Don Tolmie) for inclusion in the next revision.

### **8.1 Electrical I/O specifications**

Clauses 4 and 5 were reviewed. They had been extracted from HIPPI-6400-PH, with the input and output nomenclature reversed. Some places where the swap had not been done were pointed out.

A question was raised as to whether an electrical connector should be specified. This would help in the standardization of transceivers mounted on daughter cards, but should not be part of the standard. If it was done it would probably be an industry agreement rather than a formal standard.

The signal detection will be done on a single channel rather than on all channels as presently stated. The transmit disable text will also be redone to allow a single channel to be active during OFC. Dan Brown volunteered to draft some text for these areas

### **8.2 Link specification**

Clauses 6 through 9, and table 4 were reviewed. Hansel will provide some definitions for Pulse Width Distortion and Jitter, as he has used them on the copper side.

It was pointed out that the current optical specifications are oriented towards a single channel, and we need more text to further specify multi-channel jitter, skew, etc. This will be listed as an open issue.

The transmitter optical modulation amplitude of 0.125 mW is no longer an open issue.

### **8.3 Boiler-plate**

The abstract was reviewed and accepted as written; this same text appears in the Foreword, Introduction, and Scope. Don noted that he had stated that this is a joint project between T11.1 and T11.2. There was some concern over making it "joint". Don will discuss the issues with Schelto and Roger Cummings to see what tack we should take. Don was mainly interested in giving credit to the T11.2 participants. (NOTE - The discussion led to the decision to leave the text as current, i.e., a joint project, until we have specific problems (don't try to solve a non-problem)).

The e-mail reflector is used by the T11.2 folks, and should be used to announce new HIPPI-6400-OPT documents, agendas for the meeting, etc.

### **8.4 Normative references**

Don had copied these references almost verbatim from FC-PH 4.3, with the intent to use them as a starting point. Upon review, many of the references were deleted as not being applicable.

### **8.5 Definitions and acronyms**

Don had copied these definition and acronyms almost verbatim from FC-PH 4.3, with the intent to use them as a starting point. Upon review, many were deleted as not being applicable.

Ronald Kleckowski agreed to provide a drawing of the MPO connector for inclusion in the document.

## **9. Project Proposal status**

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The Project Proposal for HIPPI-6400-OPT was voted forward by T11 at their June 11, 1997, Plenary meeting. The project has been approved by OMC and NCITS, but the project number has not been assigned yet.

## **10. Call for patents**

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Don issued a call for disclosure of the existence of patents required to implement any and all HIPPI standards. It is necessary for the patent holders to agree to license those patents in conformance with the ANSI patent policy if the project on which they apply is to proceed. T11 and its Task Groups are not involved in this process at all other than to issue the call and forward paperwork.

The contact at ANSI is the General Counsel, Ms. Amy Marasco - (212) 642-4954 or [amarasco@ansi.org](mailto:amarasco@ansi.org). A patent policy description is at [www.ansi.org/proctbl.html](http://www.ansi.org/proctbl.html), section 1.2.11.

No new patent claims were made at this meeting.

## **11. Future meeting schedule**

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The HIPPI Optical group will continue to meet only during plenary weeks for the foreseeable future.

The next meeting will be on Tuesday, October 7, from 6 PM to 8 PM. (A conflicting meeting from 4-6 PM required starting at 6 PM, and room scheduling problems require that we adjourn at 8 PM.) The agenda will be essentially the same as the agenda for this meeting. The location is Doubletree Hotel at Randolph Park, 445 South Alvernon Way, Tucson, AZ, phone 520-881-4200 or 1-800-528-0444. The hosts are FSI Consulting, Connectivity Solutions, Gary Stephens, and Bob Kembel. The group name is "American National Standards Institute Group", the room rate is \$110 single / \$120 double, and the cutoff date for reservations is September 5.

## **12. Review action items**

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1. Hansel Collins, Steve Joiner, and Dan Schwartz to come up with a pulse width distortion number for HIPPI-6400-PH table 9, or something equivalent, e.g., jitter.
2. Dan Brown to provide normative reference for Gigabit Ethernet.
3. Dan Brown to provide new text for the signals used in OFC.
4. Dan Brown to provide new text specifying the extinction ratio.
5. Dan Brown to provide new text specifying modal bandwidth.
6. Hansel Collins to provide text for pulse width distortion and jitter, and what to include.
7. Dan Schwartz to provide new text specifying the optical receptacle and optical plug.
8. Ron Kleckowski to provide a connector drawing in electronic format.
9. Don Tolmie to update HIPPI-6400-OPT Rev 0.0 with the changes agreed to at the August meeting.

## **13. Adjournment**

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The meeting adjourned at 9:20 PM on August 5.

*HIPP-6400 Optical Working Group Minutes - August 5, 1997*

**Attendance**

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Barbara DeBaun	3M	612-737-1126	badebaun@mmm.com
Ronald Kleckowski	Alcoa-Fujikura	803-433-5332	klecko01@ssw.alcoa.com
Charles Brill	AMP	717-592-6198	cebrill@amp.com
Daniel Brown	AMP	717-986-7812	dan.brown@amp.com
Ed Cady	Berg	503-359-4556	edcady@aol.com
Jeff Young	Cray Research Inc.	612-683-5536	jsy@cray.com
Gordon Boyd	Digital Equipment Corp.	603-884-1309	boydg@mail.dec.com
Bob Willard	Digital Equipment Corp.	508-493-5482	willard@wonder.enet.dec.com
Brian Breuer	Genroco	414-644-8700	brian@genroco.com
Francois Gaullier	Hewlett-Packard	4-7614-5181	francois_gaullier@hp-france-cm1.cm.hp.com
Steve Joiner	Hewlett-Packard	408-435-6421	steve_joiner@hp.com
Dan Ravich	Hewlett-Packard	408-535-6689	dan_rausch@hp.com
Jim Tatum	Honeywell	972-470-4572	jtatum@micro.honeywell.com
Christine Pan	Los Alamos National Lab	505-665-8557	cspan@lanl.gov
Don Tolmie	Los Alamos National Lab	505-667-5502	det@lanl.gov
Dan Schwartz	Motorola	602-413-5320	a186aa@email.mot.com
Tim Plunkett	Naval Surface Warfare Ctr	540-653-1090	tplunke@nswc.navy.mil
Takeshi Nagahori	NEC	+81-44-856-2092	nagahori@aol.cl.nec.co.jp
Joe Parker	Optivision	650-855-1775	parker@optivision.com
Sherman Zhu	Optobahn	310-782-9500	xzhu@optobahn.com
Roger Ronald	Raytheon E-Systems	972-205-8043	rronald@esy.com
Karsten Droegemueller	Siemens	49-30-386-22635	karsten.droegemueller@p11.md1.siemens.net
Schelto van Doorn	Siemens Fiber Optic	408-725-3436	schelto@siemens-fo.com
Greg Chesson	Silicon Graphics	650-933-3496	greg@sgi.com
Hansel Collins	Silicon Graphics	650-933-2921	hac@engr.sgi.com
Ali Ghiasi	Sun Microsystems	650-786-3310	ghiasi@eng.sun.com
Ed Chang	Unisys	610-648-3677	edward.chang@unisis.com
Mark Donhowe	W.L. Gore & Associates	302-368-2575	mdonhowe@wlgore.com