Minutes of X3T11 HIPPI SWG, and HNF - Technical Committee (TC)
October 3, 1995
Toronto, Ontario, CANADA

1. Opening remarks

The Chairman, Don Tolmie of Los Alamos National Laboratory, opened the Technical Committee portion of the HNF meeting by thanking Kumar Malavalli and Hewlett-Packard, Canadian Network Operations, for hosting this meeting. This group is constituted as both the HIPPI special working group (SWG) under X3T11, and the HIPPI Networking Forum (HNF) - Technical Committee (TC).

The meeting attendees were:

Michael Griffin	3M Co.
Simon Fok	Avaika Networks
Jim Toy	Broadband Communications
Marti Bancroft	Cray Research
Mark Kelley	Cray Research
Roger Ronald	E-Systems
Michael McGowen	Essential Communications
Francois Gaullier	Hewlett-Packard
Don Tolmie	Los Alamos National Lab
Tim Clay	Methode Electronics
Dick O'Connell	Myriad Logic
Will Leslie	NEC Systems Lab
John Mullaney	NetStar
John Renwick	NetStar
Steve Poole	Performance Group
Duncan Poole	Silicon Graphics
Peter Haas	University of Stuttgart

2. Review / modify the draft agenda

A draft agenda was distributed before the meeting via e-mail, and an expanded draft was distributed at the meeting. No additional items were added, and the expanded draft was approved.

Don Tolmie agreed to take the meeting minutes. These minutes reflect the items on the approved agenda.

3. Review Minutes of Previous Meeting

The minutes of the X3T11 HIPPI SWG / HNF - TC meeting of August 8, 1995, in Tarrytown, New York were reviewed.

Arie Van Praag of CERN noted via e-mail that item 5.1 was inaccurate. He noted that he reported problems with the ST connectors and proposed the FC/PC connector. Arie also said that Joe Parker of Optivision and Bob Snively of Sun Microsystems backed this position.

The minutes were accepted with these corrections.

Don Tolmie noted that previous meeting's minutes are available on the HNF WWW page at http://esscom.com/hnf/. They are also available in Postscript format via anonymous ftp from ftp.network.com/hippi/minutes.

4. Review of old action items

The action items from the August, 1995, meeting were reviewed for the current status.

1. John Renwick of NetStar – Talk to Phil Cameron of Essential Communications about revising the HIPPI end-point MIB and then resubmitting it to IETF. (Done, see agenda item 6.3.)
2. Don Tolmie of Los Alamos - Check the minutes on ftp.network.com to make sure that the page headers are included. (Done)
3. John Renwick of NetStar - Update the HIPPI switch MIB. (See 6.4, this action item moved from John Renwick of NetStar, to Michael McGowen of Essential Communications.)
4. Everyone to consider changes to HIPPI-SC, and submit drafts of their proposed changes. (Done)
5. Don Tolmie of Los Alamos - Update HIPPI-Serial to Rev 1.5 with the changes approved at the August meeting. (Done, see agenda item 5.)
6. Don Tolmie of Los Alamos - Forward HIPPI-Serial Rev 1.5 to X3T11 and request an X3T11 letter ballot addressing forwarding HIPPI-Serial for further processing. (Done, see agenda item 5.)
7. Michael McGowen of Essential Communications - Update HIPPI-AC to work with HIPPI-SC and its recent changes. (Carryover)
8. Don Tolmie of Los Alamos - Work with John Renwick of NetStar and Michael McGowen of Essential Communications to update HIPPI-SC with the changes approved at the August meeting. (Done, see agenda item 8.1.)
9. Don Tolmie of Los Alamos - Draft an SD-3 Project Proposal for developing a HIPPI-AC standard. (Done, see agenda item 7.2.)

5. HIPPI-Serial

5.1 Review X3T11 Letter Ballot comments

Don Tolmie reported that at the August plenary, X3T11 at the request of our working group agreed to do a letter ballot on HIPPI-Serial, Rev 1.5. Don updated HIPPI-Serial Rev 1.4 to Rev 1.5 to include all of the changes approved at the August Tarrytown meeting. Copies were then sent to Carl Zeitler, X3T11 Vice Chairman, for an X3T11 Letter Ballot asking whether the document was ready to go forward to OMC (for a compliance check against our SD-3 Project Proposal) and to X3 (for a first public review). The X3T11 Letter Ballot closed on September 27, with a vote of 47 for, 2 opposed, and 13 not responding (this meets the 2/3 rule allowing the document to go forward once we reply to the NO votes). Comments, with NO votes, were received from Cypress Semiconductor, and from StorageTek. A comment accompanied the YES vote from Methode Electronics.

Copies of Rev 1.5, and a change list, were distributed to the attendees of this meeting, and mad available via anonymous ftp from ftp.network.com. The X3T11 Letter Ballot comments were reviewed. The Methode comment recommending changing Tables 11 and 12 from “pigtailed laser” to “laser” was accepted.

Based on the other comments received, the following general guidelines were given for document revisions:

Put the Extender information in an annex.
Convert “explanatory” text to in-line “notes.”
Use “baud” rather than “bits/sec.”

There was a desire to remove the specifications related to copper cables, and its drivers and receivers, based on the belief that no one had, or was, implementing other than fiber-based variants. Also, if copper is kept, then a knowledgeable and interested person is needed to update the copper specifications and answer the letter ballot comments. It was pointed out that it was not reasonable to directly copy the Fibre Channel specification since the baud rate and run length are significantly different. Jim Toy will check with Tera Computing to see if they are possibly using the copper variant. Don Tolmie took an action item to issue a warning over e-mail that the copper variant of HIPPI-Serial will be removed unless support for it is received within a reasonable time.

The document editor, Don Tolmie, was given an action item to update HIPPI-Serial Rev 1.5, and answer the comments, based on these guidelines. A revised document is to be made available via ftp as soon as possible for everyone to review. The revised document, and replies to the comments, are to be reviewed by the HIPPI working group before being re-submitted to X3T11.

6. IETF related items

6.1 IP over HIPPI, RFC 1374

John Renwick of NetStar reported that RFC 1374 has been broken into two RFC drafts, one titled "IP over HIPPI", and the other "ARP over HIPPI". Both drafts were revised and have been submitted to IETF as internet drafts. They are available via anonymous ftp from the Internet-Drafts repositories as:

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draft-renwick-hippiip-01.txt
draft-renwick-hippiarp-01.txt
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The major changes to IP over HIPPI include disallowing short first bursts, and Fill before D2. The result is that there is now only one encapsulation specified, for a better chance of interoperability and improved performance. John Renwick requested that everyone review the document and pass comments to him. After review by the HNF and other interested parties, John will request that the IESG make the "IP over HIPPI" document a proposed standard, superseding RFC 1374.

6.2 ARP over HIPPI

A change in the document is that the target address field was changed from zeros to the “broadcast” address. John has requested comments on the document, but none have been received yet.

After review by the HNF and other interested parties, John will request that the IESG make the "ARP over HIPPI" document an Informational RFC. John felt that we would have enough experience with it in about a year, at which time we could request that it be advanced to Draft Standard.

It was felt that the IP and ARP documents, which have a 6-month lifetime, should be dealt with together. We should have a better idea of implementation interoperability after the Supercomputer’95 show. We should plan to request IESG action in about March’96.

6.3 HIPPI end-point MIB

John Renwick of NetStar reported that the HIPPI end-point MIB has been revised, and is available via anonymous ftp from the Internet-Drafts repositories as:

`draft-renwick-hippimib-01.txt`

John gave special thanks to Phil Cameron of Essential Communications for his excellent suggestions. Changes include removing the Camp-on delay counter, added some time-out values, and changing many of the counters from 64 to 32 bits in length.

6.4 HIPPI switch MIB

Michael McGowen of Essential Communications took the action item to develop this document.

7. HIPPI-AC

7.1 HIPPI-AC document status

Michael McGowen of Essential Communications, the Technical Editor, reported that there are no changes since the last draft. The current draft is named HIPPI-SCAuto, Rev 00.04, December 1994 — the project name was changed to HIPPI Auto Configuration (HIPPI-AC) at the August meeting. Many of the concepts proposed for HIPPI-AC have rolled into HIPPI-SC, and the two should operate hand-in-hand. HIPPI-AC addresses switch-to-switch communications, while HIPPI-SC addresses switch-to-host. Michael is looking for help, e.g., NCSA and others, and also manpower within Essential Communications.

7.2 HIPPI-AC SD-3 project proposal

Don Tolmie drafted an SD-3 Project Proposal for generating a HIPPI-AC standard, and presented it for review. Don noted that Phil Cameron of Essential Communications had reviewed the draft SD-3, and agreed to be the Technical Editor of the document. The draft was modified at the meeting. John Renwick of NetStar moved, and Roger Ronald of E-Systems seconded, to forward the revised SD-3 Project Proposal for HIPPI-AC to X3T11 for further processing. Motion carried by a vote of 10 yes, 0 no.

8. HIPPI-SC

8.1 Distribution and review of HIPPI-SC Rev 2.9

Don Tolmie completed draft revision 2.9 and had made it available via anonymous ftp from ftp.network.com. Rev 2.9 includes changes for (1) added a definition for "nibble", (2) changed the format for addresses from binary notation to hexadecimal, (3) added two reserved addresses for switch management and switch-to-switch self-discovery, and (4) major revisions to the address self-discovery annex material including pseudo-code changes.

8.2 Include point-to-point address self-discovery ?

John Renwick of NetStar noted that the address self-discovery information in Rev 2.9 works well for HIPPI hosts attached to a HIPPI-SC compliant switch, but does not work when HIPPI hosts are attached point-to-point without an intermediate switch. It was felt that we should do whatever we can to make connecting HIPPI equipment as automatic as possible, and hence we should try to add whatever it takes to cover the point-to-point case. In addition, it would be useful if we could also signal the upper-layer protocols that it is not necessary to drop the connection between packets, e.g., between 64 KByte IP packets on a point-to-point connection as specified in IP over HIPPI.

8.3 Are we ready to forward HIPPI-SC ?

It was felt that we should not forward the document until address self-discovery also covers the point-to-point case, i.e., not yet.

9. HIPPI API

9.1 Status of current work

Ken Powell of SGI has provided a copyright release for the SGI HIPPI API, which may be used as the basis for a general HIPPI-API. Steve Poole of Performance Group offered to work on an expanded API, both for a driver level, and at a higher level. Michael McGowen of Essential Communications said that Ken Morris of Essential Communications will be the document editor with Steve Poole as the technical lead. Steve solicited comments and suggestions on the proposed API.

10. HIPPI-ATM

10.1 Status of HIPPI-ATM implementations vis-a-vis Rev 1.5x

Several vendors are implementing HIPPI-ATM according to Rev 1.5x. The small ATM PDU size may cause performance problems in the NetStar implementation since they are implementing with software. The NetStar implementation will interoperate correctly with the small PDU, albeit at a lower rate, and uses a larger PDU in a custom fashion for higher performance.

Adding a "granularity" feature to allow larger ATM PDUs had been proposed by Don Tolmie, but was on hold awaiting implementation experience to see if the granularity feature was needed or not. A decision is expected in February '96.

10.2 Are we ready to forward HIPPI-ATM ?

It was agreed to hold the HIPPI-ATM document in abeyance, delaying forwarding the document until implementations can be tested against each other. Forwarding is expected in the February '96 time frame.

11. Proposals for higher speeds by striping

11.1 Further consideration of August '95 proposals

At the August meeting Clive Towndrow of PsiTech, and Don Tolmie of Los Alamos, presented proposals for striping a single ULP PDU over multiple HIPPI physical layers. Clive's proposal striped each n'th 64-bit word of a higher-layer PDU across a different HIPPI physical layer. Don's proposal broke the higher-layer PDU up into larger blocks with the blocks transmitted across different HIPPI physical layers.

Clive Towndrow of PsiTech was not present - he had been tasked to look at using the Los Alamos approach at PsiTech, or integrating the two proposals. Marti Bancroft of Cray Research expressed support for the Los Alamos approach, saying that it could be implemented today in software, and easily handled alternate paths and out of order delivery. She said that the PsiTech proposal required special hardware for implementation.

12. Speeds in the 8x to 10x range

12.1 Summary of HIPPI proposal editing meeting

An ad hoc meeting was held the previous day, October 2, to discuss a "SuperHIPPI" proposal from Greg Chesson of SGI. The intent of the proposal was to replace the HIPPI-PH layer with one transferring at 800 MByte/s (6400 Mbit/s) and to interface to HIPPI-FP. The proposal used small fixed-size "micro packets" with a small header for each, and included a limited amount of multiplexing. The physical layer used parallel copper, or parallel fibers. A full proposal will be presented at the December 4 meeting in San Diego.

12.2 SuperHIPPI and SCX presentations at December '95 meeting

Elen Bahr of Heritage Displays, previously with NetStar, has obtained the use of Room 2, at the Supercomputing'95 Convention site, for 50-75 people on Monday, December 4, from 1 PM - 5 PM, for a HIPPI meeting. Don Tolmie requested the use of this room for presentations on future higher-speed HIPPI directions from SGI on SuperHIPPI, and from Cray Research on SCX. It was agreed to have the presentation after taking care of some HNF business. One item of HNF business is the election of a new HNF Board of Directors.

13. Other items

13.1 Call for changes in HIPPI-LE

In the process of updating HIPPI-SC with the address self-discovery stuff, John Renwick of NetStar noticed that HIPPI-LE has some address self-discovery stuff in 7.1 and 7.2.3. In light of the HIPPI-SC changes, this should be deprecated in HIPPI-LE, but this can probably be handled in the draft revision of RFC 1374, IP over HIPPI. No one present had other requests for changes. Don Tolmie of Los Alamos took an action item to issue a call via e-mail for other proposed changes to HIPPI-LE. If enough are collected then we will work on a revision or amendment to HIPPI-LE. Otherwise, we will leave HIPPI-LE alone.

13.2

No other items were added.

14. Future meeting schedule

14.1 Hawaii in August '96 ?

Dal Allan of ENDL had posted some e-mail requesting a set of X3T11 meetings in Hawaii to entice additional Asian participation. The current proposal is to meet in Hawaii in August 1996, and this was to be discussed in the next day's X3T11 plenary. Don Tolmie requested input from the HNF and HIPPI groups that he could take to the plenary, namely would anyone be unable to attend a meeting in Hawaii. No one present felt that they would have any problems.

14.2 HNF meeting on Tuesday, December 5, 1995, in addition to Monday presentations ?

With the half-day meeting on Monday, December 4, for the SuperHIPPI and SCX presentations (as discussed in 12.2), Don Tolmie questioned whether we also need to keep the HIPPI/HNF meetings scheduled for Tuesday, December 5, co-located with the X3T11 meetings. Marti Bancroft of Cray Research felt that the Tuesday meeting would be a good time to continue work on the proposals, expanding and refining them. It was agreed that we will keep the meeting on Tuesday for this purpose. Several people said that they had conflicts with Supercomputing'95, e.g., booth duty, and would not be able to attend on Tuesday.

14.3 December '95 meeting in San Diego

The next meeting of the X3T11 HIPPI SWG / HNF Technical Committee, will be Monday and Tuesday, December 4-5, 1995, San Diego, California. The Monday meeting will be from 1 PM to 5 PM in Room 2 of the San Diego Convention Center (the same location as Supercomputing'95). The Tuesday meeting will be from 9 AM to 5 PM, at the Clarion Bay View Hotel, 660 K Street, San Diego, CA, phone 800-766-0234. The rate at the Clarion is $105 + tax, single or double, and the closing date for reservations is November 3. The group name is ANSI or X3T11, and the host is ENDL. The cost of the Clarion meeting rooms is included in this room rate, others not under this arrangement will be required to pay a $25/day meeting fee to attend the Tuesday meeting.

1996 meetings are currently scheduled for:

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Feb 6    San Diego, CA       Vitro
Apr 9    Palm Beach, CA      Western Digital
June 11  Santa Fe, NM        Los Alamos
Aug 6    Boulder, CO area    StorageTek
         OR Hawaii           Hitachi
Oct 8    St. Petersburg      AMP
          Beach, FL
Dec 3    Palm Springs, CA    Western Digital
         OR Boulder, CO      StorageTek
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The 1997 meeting dates selected by X3T11, and the preliminary hosts, are listed below. Other hosts are being solicited.

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Feb 3-7
Apr 7-11  Boulder, CO  OR   StorageTek
          Palm Springs, CA  Western Digital
Jun 9-13  Seattle, WA (?)   Boeing (?)
Aug 11-15
Oct 6-10  Tucson, AZ (?)    FSI (?)
Dec 1-5
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Discussions of shuffling some of the meeting locations occurred at the X3T11 meeting. A possibility is Hawaii in August '96, Palm Springs in December '96, and Boulder in April '97. Stay tuned for future developments.

15. Review action items

1. Michael McGowen of Essential Communications - Generate a HIPPI switch MIB.
2. Everyone to consider changes to HIPPI-SC, and submit drafts of their proposed changes.
3. Michael McGowen of Essential Communications - Update HIPPI-AC to work with HIPPI-SC and its recent changes.
4. Don Tolmie of Los Alamos - Forward the revised SD-3 Project Proposal for HIPPI-AC to X3T11 for further processing.
5. Everyone to propose changes to HIPPI-LE.
6. Don Tolmie of Los Alamos - Issue a call via e-mail for proposed changes to HIPPI-LE.
7. Jim Toy of BCP - Check with Tera Computing to see if they are using the HIPPI-Serial copper variant.
8. Don Tolmie of Los Alamos - Issue a warning over e-mail that the copper variant of HIPPI-Serial will be removed unless support for it is received within a specified reasonable time.
9. Don Tolmie of Los Alamos - Update HIPPI-Serial Rev 1.5 to answer the X3T11 Letter Ballot comments.
10. Don Tolmie of Los Alamos - Generate replies to the X3T11 Letter Ballot commentors.

17. Adjournment

The meeting adjourned at 4:30 PM.

Notes from X3T11 Plenary following the HNF-TC

The X3T11 Plenary meet the next day, i.e., October 4. HIPPI related items are reported here for your convenience, the definitive record is the X3T11 minutes.

Our request for processing HIPPI-Serial as an ANSI standard, instead of as an X3 Technical Report, was approved by an OMC vote of 20-0-9.

The amendment to ANSI X3.210-1992, HIPPI-FP, is still wending its way through the approval process. It was noted that a single sheet of paper is easy to lose, and in the future we may want to glue single sheets to lead bricks.

Roger Cummings of StorageTek, the Technical Editor, reported that HIPPI-FC, X3.283-199x, completed its first public review on September 19 with the only comments coming from the ANSI editor. Roger will work with the ANSI editor to try to keep a consistent style with the other HIPPI documents.

X3T11 accepted our revised SD-3 Project Proposal for HIPPI Auto Configuration (HIPPI-AC). An X3T11 letter ballot, closing before the December plenary, was authorized for this SD-3.

Don Tolmie announced to the X3T11 plenary attendees that the Monday, December 4, HIPPI meeting will include proposals from SGI and Cray Research addressing 8x - 10x HIPPI. This generated considerable interest. There is not much else going on for Fibre Channel that day, so this HIPPI meeting may attract more people.