Minutes of T11.1 HIPPI Ad Hoc Working Group
November 5-6, 1997
Albuquerque, NM

1. Opening remarks and introductions

The Chairman, Don Tolmie of Los Alamos National Laboratory, opened this meeting and accepted the thanks from the group for Los Alamos National Lab, and Don, for hosting this meeting. This group is constituted as both the HIPPI Working Group under T11.1, and the HIPPI Networking Forum (HNF) - Technical Committee (TC).

Don lead a round of introductions. The list of attendees is at the end of these minutes.

2. Review / modify the draft agenda

Draft agendas were distributed via e-mail before the meeting and hard copies were distributed at the meeting. Items 6.7 for ST end-to-end checksums, and 6.8 for CCI, were added at the meeting.

3. Review minutes of previous meeting

The minutes of the October 7-8, 1997, working meeting in Tucson, were reviewed. Bob Willard moved, and Joe Parker seconded, to approve the October 7-8 working meeting minutes as written. Motion passed unanimously.

4. Review old action items

1. Everyone to review the HIPPI-800 Switch MIB and pass comments to Marck Doppke. (Carryover)
2. Von Welch to contact HIPPI-6400 MIB users and developers for comments on the current draft, and to prepare a presentation on the MIB for a future meeting. (Carryover)
3. Von Welch to look at developing a HIPPI-6400 host system MIB (for a NIC), to be done now as an annex of the present MIB with the possibility of splitting it out as a separate document at a later date. (Carryover)
4. Everyone to review the HIPPI-6400 MIB. (Carryover)
5. Kevin Lahey, Jeff Young, Jean-Michel Pittet, and Greg Chesson to begin an IP and ARP over HIPPI-6400 RFC. (Underway)
6. Jean-Michel Pittet to develop an RFC for ARP over HIPPI-800. (Underway)
7. Jeff Young to pulse Mark Kelley about the HIPPI end-point MIB and report the status on the reflector. (Carryover)
8. Don Tolmie to check with John Renwick on the status of RFC 1374. (Done)
9. Greg Chesson to contact Bob Snively of Sun about material and format for an IEEE tutorial on HIPPI-6400 ULA usage, and the ULAs special to HIPPI-6400. (Carryover)
10. Greg Chesson and Jeffrey Chung to consider developing "reason codes" to explain why a particular ST Operation was rejected. (Carryover)
11. Jeffrey Chung to develop state tables for inclusion as an ST annex. (Underway)
12. Greg Chesson to send e-mail detailing reasons for not doing a queue for client/server applications, and suggesting how they could be done in ST. (Carryover)
13. Jerry Leitherer to generate text and figures describing the ST over Fibre Channel mapping for inclusion in ST. (Done)
14. Jim Pinkerton to provide a definition for ST for "atomic". (Done by Greg Chesson)
15. Jim Pinkerton to do a rewrite of ST Annex C. (Carryover)
16. Don Tolmie to update ST Rev 1.11 with the changes agreed to at the October meeting. (Done)
17. Roger Ronald to update HIPPI-6400-SC Rev 1.61 with the changes agreed to at the October meeting. A version with change bars and the change list, and a version without, are to be generated. (Done)
18. Greg Chesson to check with Jon Postal on the correct designation for RFC 1700. (Done)
19. Don Tolmie to update HIPPI-6400-PH Rev 1.83 with the changes agreed to at the October meeting. A version with change bars, highlights,

and the change list, and a version without, are to be generated. (Done)

20. Michael McGowen to collect and tabulate everyone's requirements for HIPPI-800 and HIPPI-6400 translation environments. (Carryover)

5. Review changes in documents forwarded for T11 letter ballots

5.1 HIPPI-6400-PH (ref: Rev 1.9, October 14, 1997)

The changes in Rev 1.9 were reviewed and the changes were accepted as written. Don Tolmie noted that he had received a call from Bill McCoy of Raytheon/E-Systems asking for a change in the dimensions in figure 23 on page 37. Don requested that Roger Ronald include this comment in the Raytheon/E-Systems letter ballot comments.

Don noted several other editorial errors, and will submit letter ballot comments for them. Included are "50 m" should be "40 m" in the Abstract, Foreword, Introduction, and Scope; payload contents in the figure 4 (p5) micropackets (comment from Kevin Shedden of Raytheon/E-Systems); and in table 12 (p38) change "...CLOCK Training sequence" to "...Training sequence".

Greg Chesson said that some of the SGI board designers had expressed concern over "connector tearout", and would have liked a deeper connector. No one else had run into this problem.

5.2 HIPPI-6400-SC (ref: Rev 1.7, October 15, 1997)

Roger Ronald led the discussion of the changes in Rev 1.7, which for the most part had been accepted as reviewed verbally in the Tucson meeting.

Roger noted that the use of a switch's 802.1d ULA was not completely defined when a broadcast server is used. To complete the specification, the switch needs to pass this ULA to the broadcast server and route any messages with this Destination ULA to the broadcast server. The broadcast server also must use this value as a Source ULA when handling 802.1d negotiation.

Roger also noted that figure 2 needs to be updated to be consistent with the same figure in HIPPI-6400-PH. Roger will be submitting both of these as comments against the -SC letter ballot.

5.3 HIPPI-FP (ref: Rev 4.7, October 14, 1997)

The only change in the document was the inclusion of the T11.1 names. As instructed at the October meeting, the names were the current T11.1 principals and alternates, and the T9.3 list in X3.210-1992. The list contains many names that no one remembered, but they were included for completeness.

5.4 Making letter ballot comments

Don detailed the procedure for making comments against these documents. If anyone who is not a T11 member wishes to make written comments against any of the three documents at this time, please send them to Don, via e-mail at det@lanl.gov, by November 21. We will treat them in the same manner as the T11 comments, e.g., written response, etc. The format for written comments is:

State the document name you are commenting on.

Number each comment against this document.

State whether the comment (in your eyes) is editorial (E) or technical (T).

5.5 Resolving letter ballot comments

Don reported that the T11 letter ballots for the three documents have been mailed to the T11 members, and Don received his on October 28. The closing date for the ballots is Friday, November 21. Hence, we will have the Thanksgiving week, and the following week, to review any comments resulting from the letter ballots. Hopefully we can reach consensus on how we want to respond to the comments at the December 9-10 HIPPI meeting in Orlando. The T11 members are supposed to, but may not, provide the comments in electronic form. Don will make the comments available to the HIPPI group as soon as he can. We will have to respond in writing to all of the comments. Our options for responses are:

1. To accept the comment and modify the document accordingly.
2. To reject the comment and state why we did. (We should work with the person making the comment to make sure that they understand our reasons.)

Once we have reviewed the comments, and made the changes to each document, then the final document and comment resolutions will be voted on by T11.1 (probably at the February Plenary in San Diego). If approved, then they go to T11 for their review and vote. If T11 approves them (by a meeting vote), then each revised document (without the comment resolutions) go to OMC for compliance review (against our SD-3 Project Proposal), and then to NCITS for first public review.

6. Scheduled Transfer (ref: Rev 1.2, October 30, 1997)

6.1 Review changes

The major change to the document was the addition of the detailed descriptions of the individual sequences and operations. Changes were also made to the summary tables. Before diving into the tables and clauses 5 and 6, the changes in the rest of the document were reviewed.

Minor changes were made to the FetchOP, Schedule Transfer, Schedule Transfer Unit, sequence, and ULA definitions. It was agreed to add a statement about "numbers being represented as unsigned integers" in 3.2. It was agreed to add acronyms for D_, S_, and LAN.

In 4.2, some editorial changes were made to the first and second paragraphs. In the third paragraph the concept of executing a retransmission with a Clear_To_Send was added. In the second paragraph following figure 3, a sentence was added, giving an example of optional payload usage.

In 7.1, "one time" was added to note how Read and Write Blocks are used. In 7.4, the first part of the second paragraph was reworded to specify requirements for "reliable" operation.

In 10.5.7, the sentence order was changed, and "The actions..." was changed to "Other actions...".

6.2 Review changes in Tables 3-7

It was agreed to drop the word "operations" from the table titles, e.g., "Connection management sequence operations" goes to "Connection management sequences".

Don noted a problem with the "I_Bufx" and "I_Offset" fields; namely that in PG5 and PG7 the I-Bufx and I-Offset parameters are carried in the Bufx and Offset fields. Greg suggested, and everyone agreed, to change the name of the I_Bufx field to Bufx_2, and the I_Offset field to Offset_2.

A lot of time was spent going over the three variants of Request_State and Request_State_Response. A goal is uniformity in all of the uses. It was agreed to set the D_id field = x'FFFF' in the Com1 sequence. In essence, this tells the Responder not to look for an active Transfer; just respond with Slot information. The B_num and B_seq responses (in the B_num and Offset fields respectively) will specify * values.

In Com2 and Com3, I-id and R-id were added in the S_id field, making them consistent with W4 and PG4. The Responder needs to keep state information so that it can differentiate between whether to give a Com2 or Com3 reply. If the Request_State_Response is in reply to a Request_State with B_num = x'FFFFFFFF', then echo the B_num field. The possibility of using a special bit (maybe in the Flag field), to indicate success/failure of a specific B_num, and always echoing B_num (rather than coding success/failure in the B_num value), was rejected by a show of hands. In PG4 the S_id field was set to R-id.

Bob Willard suggested that we change the names associated with Com1, 2, and 3. It was agreed to call Com1 "Request Slot state; Com2 "Request Transfer state", and Com3 "Request Block state". The notes at the bottom of each table were word-smithed to help clarify the Initiator and Responder roles.

After discussing some problems with inconsistencies with PG6 and PG8, Greg noted that they were really unnecessary. If the data did not transfer correctly then it was the Initiator who would request retransmission, not the Responder. It was agreed to delete the Request_State_Response operations in PG6 and PG8, and the S flag in the Data operations that triggered them. In PG5 the I-Bufx and I-Offset parameters in the Data operation will be changed to bold-italic since the Data operation could include multiple STUs.

In the PG5 and PG7 Data operations, the "I" flag was in normal font, meaning that it was copied from the previous operation. This was deemed incorrect, and it was agreed to change it to bold-italic. Now the I

flag is always under the control of the sender and is never echoed.

Don questioned whether we needed the separate "G-id" name, and instead could just use R-id and I-id. It was pointed out that multiple simultaneous Puts, Gets, and FetchOPs were desired, and hence we should not only keep "G-id" but should change the identifier in the FetchOP operations from G-id to F-id. This was accepted.

Jim Pinkerton requested that we allow the B_num value to be other than x'00000000' when used with persistent memory operations. His rationale was that it would provide a way to have multiple outstanding Put operations, and seemed to be a natural extension since the B_num normally increments anyway. After some discussion this was accepted, and resulted in the B_num fields in PG3 and PG4 changing from x'00000000' and * respectively, to B_num. Since we were trying to go away from the concept that the "persistent memory region" was also a Block (confusing since we were now allowing multiple Block transfers in the region), it was agreed that it would be clearer to change names: "Request_Memory_Block" to "Request_Memory_Region", and "Memory_Block_Avaliable" to "Memory_Region_Available". "Memory Index" will also be added to the definition list.

The name "B_id" was found to be easily confused with the transfer identifiers. We thrashed over a different name and came up with "Memory index (Mx)" as a replacement for B_id. The Mx will be preceded by I- or R- to denote whether it was assigned by the Initiator or Responder. In PG5 and PG7, we added R-Mx in the Sync field so that each end specifies its memory area as the (Mx, Bufx, Offset) triple.

Greg noted that all of the Initiator's operations had ways to reject them, except for Gets. It was agreed to add a conditional Request_Answer operation following PG5's Data operation. The Param field in PG7, FetchOP_Complete was changed from "don't care" to *.

Rather set up a persistent memory region and then find out that the Responder does not support specific operations, it was agreed to use the F flag bits during the connection setup to note capability support/non-support. Bob Willard requested that bit/little endian ULP architecture also be noted, and it was accepted. The bits were assigned as: F = b'x00' means doesn't support Persistent; F= b'x01' means support for Persistent, but not for FetchOP; F = b'x11' means support for Persistent and FetchOP; F = b'0xx' means big endian ULP architecture; F= b'1xx' means little endian ULP architecture.

6.3 Review clauses 5 and 6

The detailed descriptions of the individual sequences and operations were reviewed. Jim Pinkerton suggested that we delete some of the repetitive text concerning Request_State_Response and just use references. With the removal of PG6 and PG8, the text to be removed was deemed small. It was felt that it was more consistent and useful to leave it in.

While reviewing the operations details, we also went over the individual parameters as they were referenced, resulting in even more changes.

Some minor editing was done to 5.1.1 and 5.1.2. It was noted that in 5.1.2, the second bullet was incorrect, and wrong throughout the document. A global change to "R-Port, I-Port, and R-Key..." will be made. Other changes to similar text will be made consistently through the document, i.e., every effort will be made to keep the consistency where possible.

In 5.2.3, the text was reworded to delete the "most efficient when both sides the same size" and add that the transmitting sizes are exchanged, and they may be different from the receive buffer sizes. In 5.2.4, it was noted that we were inconsistent with Max_STU; some places used an underscore and other places used a dash – it will be made a consistent underscore. In 5.2.7, the reference for RFC 1700 will be made consistent with what is in HIPPI-6400-PH.

In 6, the last sentence was replaced with one noting that fields carrying a * were not discussed, were transmitted as zeros, and ignored at the receiver. In 6.1.1.1, .2, and .3, the titles were changed to "Request Slot state", Request Transfer state", and Request Block state" respectively. Text will be added to note the hierarchy of information delivered.

In 6.1.1.1, the B_num and Offset fields were changed to match the tables. In 6.1.1.2, and other places in the document, the text describing the "highest numbered Block received correctly" will be modified so that it is specifies a contiguous set of correct Blocks. Globally, the word "value" will be removed

from "...Port and Key values", "...Transfer identifier value", "...Buffer Index value", and "...initial Offset value".

In 6.1.1.4, text was added to specify when the end devices release resources. The sentence about either end being the Initiator or Responder was deleted. The sentence under End about both Transfer id's being a safety measure was deleted.

In 6.1.2, and globally, "D = b'xx' specifies..." was changed to "D flags specify...". Under Request_Answer, and globally, "...cannot be issued within the Timeout period..." was changed to "...may be delayed...". Under Clear_To_Send, and globally, "B-id" was changed to either "I-Mx" or "R-Mx" and "...Block identifier" changed to "...Memory index". Under End, the notion of End terminating an unlimited transfer was added.

In 6.1.3 and figure 9, the two Request_State_Response operations were deleted. Under Data, and globally, "Opaque assigns..." was changed to "Opaque contains...".

In 6.1.4, the first paragraph had some rewording, and changes of "B-id" to "G-id or F-id". In figure 10, the first two operation names were changed as previously stated, a Request_Answer operation was added after Get, and the last two Request_State_Response operations deleted.

In 6.1.4.1, the operation name was changed as previously stated. It was noted that the text did not consistently give references to the tables, and it was requested that missing ones be added. Request_Answer will be added following the Get operation, and the last two Request_State_Response operations deleted from the text. The flags under Data were updated to delete S, and "I echoes...", and the B_num parameter removed.

In 6.1.4.4, changed "...a 64-bit data Block..." to "...a 64-bit aligned, 64-bit data Block...". Changed the G-id's to F-id's. Under R-Offset, changed "...Offset value for this Block..." to "...Offset value, evenly divisible by eight, for this Block...". Added the R-Mx parameter under FetchOP. Fixed the flags under Data the same as in 6.1.4.3. Changed "don't care" to * in PG7.

In 6.2.1, added F-id to the list of identifiers. Added that x'FFFF' is a reserved value, and changed x'0000' to x'FFFF' in the last sentence.

Changed 6.2.2 from Block identifier (B_id) to Memory index (Mx), and changed the text appropriately. Deleted the note about being equivalent to Sync.

In 6.2.4, deleted the sentence about the maximum number of Blocks and replaced it with as statement about B_num wrapping from x'FFFFFFFE' to x'00000000'. Moved the second paragraph of 6.2.11 to this clause.

In 6.2.5, noted that the Blocksize is not applicable for a persistent memory region. In 6.2.7, agreed to modify the second paragraph to reflect correct usage with Get and FetchOP. In 6.2.8, deleted the note about Sync being similar to B_id. In 6.2.11, added a sentence to the first paragraph about the receive and transmit buffers assumed to be the same size.

6.4 ST over Ethernet as the lower layer

Greg Chesson had updated the material he presented at the Tucson meeting, and Don had integrated it into Annex A.3. It was reviewed, and a few editorial changes were made to the first paragraph.

6.5 ST over ATM as the lower layer

Robert Hyerle of Hewlett-Packard had provided ST over ATM, Rev 2.0, dated September 24, 1997 previously, but had not been available to present it at the October meeting. Robert was not present at this meeting either, we were getting tired, and rather than screw it up we decided to table this portion of the document.

6.6 ST over Fibre Channel as the lower layer

Jerry Leitherer of Genroco provided ST over Fibre Channel, Rev 2.0, dated October 28, 1997. The proposal was based on FC-LE. There were questions about the appropriate use of Fibre Channel Class 2 or Class 3. Class 1 was deemed not appropriate since it cannot multiplex. It was agreed that we need to look at the TCP/IP profile to see if it is more appropriate than FC-LE. Jerry will continue the investigation.

6.7 End-to-end checksum

Ian Philp of Los Alamos requested that an end-to-end checksum be added to ST. Currently we rely on

the checking provided by the lower-layer protocols, but have no end-to-end checking mechanism. Since we are looking at ST as a peer to TCP/IP, and a checksum is provided in TCP, then ST is coming up somewhat short. The lack of a checksum was not viewed as a major problem when reliable HIPPI-6400 is our only lower layer. It is mixed environments, e.g., HIPPI-6400, Ethernet, and ATM, where checksums would really be nice. Also, without checksums, ST may not be accepted in some environments.

Two ways to add checksums, that would probably be compatible with the SHAC chip, were discussed. One way limited STUs to 2 KBytes and used the TCP checksum algorithm. The other way involved a separate trailer message containing the checksum. Greg Chesson took an action item to further study the issue and report at a future meeting.

6.8 CCI

Bob Willard wanted "CCI" back in figure 5 and some more text in 5.3 to give a better hint about how addresses are passed from ULPs to lower layers. It was agreed to add CCI under "Parameters for local end" in figure 5, and text for 5.3 was crafted.

6.9 API

When asked about an applications programming interface (API), Greg Chesson distributed a preliminary copy of an API being developed by SGI and some of its partners. Greg said that SGI will make it publicly available on the web page after it is more complete.

7. Other HIPPI items

7.1 IP over HIPPI, RFC 2067

Don Tolmie has been in contact with John Renwick of Ascend about the status and prospects for IETF Draft Standard RFC 2067. A small error had been pointed out by Jes Sorensen of CERN. The comment from Jes was an editorial comment: "As far as I can see, your definition of the SNAP header swaps the DSAP and the SSAP fields, compared to the definition in Stevens TCP/IP Ill. Vol. 1 and the other sources I have seen.". John Renwick did not feel that it was really a serious bug since the two fields always carry the same fixed value. John said that he would fix it in the next revision, which would occur when it was elevated to Internet Standard, otherwise it will stay the same. The process to go to Internet Standard is outlined in the IETF procedures as:

> 4.1.3 Internet Standard
>
> A specification for which significant implementation and successful operational experience has been obtained may be elevated to the Internet Standard level. An Internet Standard (which may simply be referred to as a Standard) is characterized by a high degree of technical maturity and by a generally held belief that the specified protocol or service provides significant benefit to the Internet community.

In his e-mail, John stated: "If the RFC stays at Draft Standard for 2 years, the IESG is supposed to "review the viability of the standardization effort responsible for that specification and the usefulness of the technology" every 12 months. They can decide to leave it at Draft status or retire it to Historic. So if you're happy with the status quo, there's no need to do anything more with it, really.". John had some concerns about whether we had met the criteria for its current status as Draft Standard with two separate implementations for every option – the options included dual-wide, use/nonuse of ULAs in the HIPPI-LE header, and use/nonuse of camp-on. Since it is already a Draft Standard perhaps we can ignore them; but trying to advance to Internet Standard may open a can of worms.

The consensus of the group was that "status quo" was acceptable, and work an to advance the RFC did not seem warranted.

7.2 ARP over HIPPI-800

Jean-Michel Pittet from SGI is working on the RFC. Nothing new was reported at this meeting.

7.3 HIPPI end-point MIB

Mark Kelley of Cray Research had previously said that he would start working on the end-point MIB again. Jeff Young had taken an action item to pulse Mark and report the status on the reflector. Neither Mark or Jeff were at this meeting, and nothing new was reported.

7.4 HIPPI switch MIB

Marck Doppke of Essential Communications has a draft document out for comment. Marck said that he hasn't received any comments, and would only expect them from switch developers.

7.5 HIPPI-6400 MIB

Von Welch of NCSA has a draft document out for comment. Von was not at this meeting and nothing new was reported.

7.6 HIPPI-6400 ARP and IP RFC

Greg Chesson said that Kevin Lahey, Jeff Young, Jean-Michel Pittet are developing an RFC for HIPPI-6400 ARP and IP. Greg said that Jean-Michel is currently working on the RFC.

7.7 IEEE Tutorial for HIPPI-6400 ULA usage

Greg Chesson is drafting an IEEE Tutorial for HIPPI-6400 ULA use. Nothing new was reported at this meeting.

8. Future meeting schedule

8.1 Plenary week, December 9-10, Orlando, FL

The next working meeting will be at the Radisson Hotel Orlando Airport, 555 Hazeltine National Drive, Orlando, FL, phone (407) 856-0100 or (800) 333-3333. Roger Cummings and DPT are the host. The group name for reservations is T11 and the group room rate is $110 plus tax. The reservation cutoff date is October 22, 1997. (See the meeting announcement on the web page at http://www.cic-5.lanl.gov/~det/ for further details.)

Tuesday - December 9 :
9 AM – 6 PM : HIPPI working meeting
6 PM – 8 PM : HIPPI-6400 Optical
Wednesday - December 10 :
9 AM – 6 PM : HIPPI working meeting
6 PM – 8 PM: T11.1 Plenary

Don had assumed that the first priority in December would be reviewing and answering the T11 letter ballot comments, but Roger Ronald disagreed with this. After some discussion it was agreed that ST would be our highest priority. The letter ballot comments will be reviewed, but difficult ones may be differed for discussion over e-mail and final resolution at the January meeting

8.2 Interim meeting, January 13-14, Mountain View, CA

The next interim working meeting will be hosted by Greg Chesson and SGI in Mountain View, CA. No venue details were available at this meeting – watch the e-mail for the announcement. Since there is no specific meeting hotel, and hotel rooms in Silicon Valley are scarce, people were encouraged to make their hotel reservations as soon as possible.

There is a possibility that we may spend a fair amount of time resolving T11 Letter Ballot comments against HIPPI-6400-PH, HIPPI-6400-SC, and HIPPI-FP, at this meeting. The amount of time will depend on the number and content of the comments. Specific times for different agenda items will be set at a later date when we have a better idea of our work load. Greg will reserve a conference room for three days in case our work load requires it. The Thursday meeting is tentative.

Tuesday - January 13 : 1 PM - 9 PM
Wednesday - January 14 : 8 AM - 9 PM
Thursday - January 15 : 8 AM - 5 PM (tentative)

11.3 Future meeting dates and locations

The T11.1 (i.e., HIPPI), Plenary meeting will be on Wednesday evening of the T11 Plenary week, following the HIPPI working meetings.

The 1998 schedule is firm. Note that T11 schedules the plenary meetings. Hopefully HIPPI-6400 will be far enough along that we will not continue to need interim working meetings; more may be scheduled as we see the need. The August meeting in Portsmouth was reaffirmed by T11. Recent additions and changes are underlined and bold.

1998 –

Jan 13-14	Interim	Mt. View, CA	SGI
Feb 10-11	Plenary	San Diego	Qlogic
Mar 10-12	Interim	Minneapolis	Cray
Apr 21-22	Plenary	Palm Springs, CA	Brocade
Jun 9-10	Plenary	St. Petersburg Beach, FL	AMP
Aug 11-12	Plenary	Portsmouth, UK	Xyratex
Oct 6-7	Plenary	Ft. Lauderdale, FL	Adaptec
Dec **14-18**	Plenary	**Tucson**	**FSI**

All of the 1999 schedule is new, and just includes the Plenary weeks; no interim working meetings are scheduled yet. Note that the HIPPI and T11.1 meeting days are not specified; they will be somewhere within the Plenary week.

1999 –

Feb 8-12	Plenary	San Diego, CA (?)	Qlogic
Apr 5-9	Plenary	Palm Springs, CA (?)	Brocade
Jun 7-11	Plenary	?	?
Aug 2-6	Plenary	?	?
Oct 4-8	Plenary	Ft. Lauderdale, FL (?)	Adaptec
Dec 6-10	Plenary	Lake Tahoe, CA (?)	Solution

12. Review action items

(The action items are grouped by project or category to hopefully make them easier to find.)

1. Everyone to review the HIPPI-800 Switch MIB and pass comments to Marck Doppke.
2. Von Welch to contact HIPPI-6400 MIB users and developers for comments on the current draft, and to prepare a presentation on the MIB for a future meeting.
3. Von Welch to look at developing a HIPPI-6400 host system MIB (for a NIC), to be done now as an annex of the present MIB with the possibility of splitting it out as a separate document at a later date.
4. Everyone to review the HIPPI-6400 MIB.
5. Kevin Lahey, Jeff Young, Jean-Michel Pittet, and Greg Chesson to begin an IP and ARP over HIPPI-6400 RFC.
6. Jean-Michel Pittet to develop an RFC for ARP over HIPPI-800.
7. Jeff Young to pulse Mark Kelley about the HIPPI end-point MIB and report the status on the reflector.
8. Don Tolmie to submit letter ballot comments against HIPPI-6400-PH concerning the editorial errors of 50 m vs. 40 m, and errors in figures 4 and table 12.
9. Roger Ronald to submit a letter ballot comment against HIPPI-6400-PH concerning the suggested changes in figure 23.
10. Roger Ronald to submit letter ballot comments against HIPPI-6400-SC concerning the broadcast server's ULA, and the error in figure 2.
11. Greg Chesson to contact Bob Snively of Sun about material and format for an IEEE tutorial on HIPPI-6400 ULA usage, and the ULAs special to HIPPI-6400.
12. Greg Chesson and Jeffrey Chung to consider developing "reason codes" to explain why a particular ST Operation was rejected.
13. Jeffrey Chung to develop state tables for inclusion as an ST annex.
14. Greg Chesson to send e-mail detailing reasons for not doing a queue for client/server applications, and suggesting how they could be done in ST.
15. Jerry Leitherer to continue work on the ST over Fibre Channel mapping with special attention as to whether Class 2 or Class 3 is appropriate, and if the FC TCP/IP profile should be used instead of FC-LE.
16. Jim Pinkerton to do a rewrite of ST Annex C.
17. Bob Willard to write up something on big/little endian issues for inclusion in the document.
18. Greg Chesson to collect text for a "folklore" annex in the document.
19. Greg Chesson to draft text describing how you differentiate duplicate operations from legal operations.
20. Greg Chesson to further study ST checksums and report at a future meeting.
21. Don Tolmie to update ST Rev 1.2 with the changes agreed to at the October meeting.
22. Everyone to review HIPPI-6400-PH Rev 1.9, HIPPI-6400-SC Rev 1.7, and HIPPI-FP Rev 4.7, and submit, in electronic form, any comments against them to Don Tolmie by November 21.
23. Michael McGowen to collect and tabulate everyone's requirements for HIPPI-800 and HIPPI-6400 translation environments.

13. Adjournment

The meeting adjourned at 7:30 PM on November 6.

Attendance

Gordon Boyd	Digital Equipment Corp	603-884-1309	boyd@solvit.enet.dec.com
Bob Willard	Digital Equipment Corp	978-493-5482	bob.willard@digital.com
Ed Brady	Essential Communications	505-344-0080	cebrady@esscom.com
Mark Doppke	Essential Communications	505-344-0800	marck@esscom.com
Nicolas Droux	Essential Communications	505-344-0080	droux@esscom.com
Jerry Leitherer	Genroco, Inc.	414-644-2506	jerry@genroco.com
Ian Philp	Los Alamos National Lab	505-667-4305	philp@lanl.gov
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