

Minutes of T11.1 HIPPI Ad Hoc Working Group

August 3-4, 1999
Rochester, MN

1.0 Opening remarks and introductions

The T11.1 Chairman, Roger Ronald of Power Micro Research, opened this meeting at 11 AM and thanked Horst Truestedt of ENDL for hosting this meeting.

This group is constituted as both the HIPPI Working Group under T11.1, and the High Performance Networking Forum (HNF) - Technical Committee (TC).

Roger lead a round of introductions. The list of attendees is at the end of these minutes. Roger volunteered to produce these minutes.

2.0 Review / modify the draft agenda

Draft agendas were distributed via the www.hippi.org web site before the meeting. There were no changes.

These minutes reflect the approved agenda.

3.0 Review minutes of previous meeting

The minutes of the July 13-14, 1999, HIPPI Working Meeting in Seattle, WA were reviewed.

Jim Pinkerton noted that a statement about SGI "not wanting ST over IP over HIPPI-6400" was incorrect.

Roger Ronald noted that section 11.4.2 should have been changed to note that the HIPPI-800 switch MIB was to be removed from the agenda for future meetings.

Roger also noted that action item #16 had the incorrect month and should have referred to the July 1999 meeting.

Jeff Young moved and Jim Pinkerton seconded, to approve the July 13-14, 1999 working meeting minutes as amended.

The motion passed without objection.

4.0 Review old action items

The action items from the July 13-14, 1999 meeting were reviewed.

1. John Gibbon to consider development and documentation of HIPPI-6400 MIBs. (**carry-over**)
2. Jean-Michel Pittet to provide the IETF RFC number for "ARP and IP broadcast over HIPPI-800 (GSN)" to Don Tolmie and Roger Ronald. (**carryover**)
3. Greg Chesson to draft an IEEE tutorial on HIPPI-6400 ULA usage and the ULAs special to HIPPI-6400. (**carryover**)
4. Greg Chesson to collect information for an "ST FAQ" html document. (**carryover**)
5. Greg Chesson to draft a top-level structure for the ST-API document. (**carryover**)
6. Don Tolmie to make the edits to the Scheduled Transfer document (rev 3.2) agreed to at the July, 1999 meeting. (**done**)
7. Eric Salo to update the level 0 ST API text with the changes agreed to at the May 1999 meeting. (**carryover**)
8. Eric Salo to update the level 0 ST API text with the changes agreed to at the July 1999 meeting. (**carryover**)
9. Eric Salo to specify field sizes in the ST API in accordance with the approach selected at the May, 1999 meeting. (**carryover**)
10. Ed Cady to continue to provide the committee with information on progress towards a PCI version of the FCI-Berg Micropax connector. (**done at this meeting, but still a carryover**)
11. Bob Newhall to provide information on the changes needed in HIPPI-6400-PH to allow passing EMI testing requirements. (**carry-over**)

12. Roger Ronald to post his slides on the new HIPPI-6400 PHY approach. **(done)**
13. Mike Boorman to provide his slides on changes in the ST API. **(done)**
14. Roger Ronald to post the HIPPI-800 bridging document from Nicolas Droux on the web site. **(done)**
15. Nicolas Droux to update the HIPPI-800 bridging document with the changes agreed to at this July, 1999 meeting. **(carryover)**
16. The Chair (Roger Ronald) to produce the minutes for the July, 1999 meeting. **(done)**

5.0 HIPPI-6400-PH (ref: Rev 2.4)

The draft amendment provided by Don Tolmie is waiting on resolution of cable EMI and PCI form factor compatibility issues prior to completion.

A call to ask for any further input on the project proposal calling for an amendment to change HIPPI-6400-PH was made. No new changes were proposed.

5.1 EMI and Cable problems

Bob Newhall (via Jim Pinkerton) reported that SGI has succeeded in passing formal EMI tests.

This impediment to moving the HIPPI-6400-PH document forward will now be removed as soon as we can collect and document any changes that are needed to match the standard with the completed test configuration. It is expected that these changes are minor and may be limited to the specification of ground connections. Bob Newhall has an action item to provide this information.

5.2 PCI/Cables/Connectors

John Ellis of FCI-Berg reported on their progress towards a PCI form factor connector. At the last meeting, drawings were reported as complete, except for a dimension that exceeds the allowable thickness.

At this meeting, John addressed concern that progress on a PCI compliant cable was not proceeding along with the PCI compliant connector. Although there was some confusion between divisions, John stated that FCI was moving towards a complete PCI compliant cable/connector system.

John Ellis accepted an action item to provide Don Tolmie with the name his company prefers to have in the standard and drawings/information on the cable and connector.

Also at this meeting, Herb Van Dussen of WL Gore showed some samples of a HIPPI-6400 cable with a reduced outer diameter. The general consensus was that everyone loved a cable that was less than 1/2" in diameter. Herb cautioned that the increased loss of 32 gauge cable would probably limit this size to 25 meter runs or less.

5.3 NuMAC Proposal

Roger Ronald presented some ideas about creation of a new physical layer at the July meeting. The charts presented during the meeting were posted to the web page.

There was nothing new on this topic during the meeting, but those in attendance (as well as any others that can be recruited) are urged to look for PHY layer parts that meet our requirements. The posting on the slides did result in some outside interest and there was a participant who attended to keep informed on this topic.

5.4 Draft Amendment Processing Plans

Since the cable issue is still not resolved, we can't forward the amendment yet. However, this now looks more likely in the near future. The major item to complete now is to get a report from Bob Newhall on how the standard must be amended to support the cabling changes required to pass EMI testing.

6.0 HIPPI-6400-SC (ref: Rev 2.5)

6.1 Processing status

HIPPI-6400-SC Rev 2.5 has been approved as an ANSI standard!

The ANSI editor has contacted Roger Ronald (the document technical editor) and the document editing is complete.

However, due to a change in NCITS/ANSI policy the editing is supposed to occur prior to balloting. Since this did not happen NCITS is insisting that the final version should incur another expedited round of balloting. Therefore a motion will be brought up before the plenary to re-affirm HIPPI-6400-SC in its edited form. Unfortunately, it was not

feasible to vote on the document at this meeting since it did not get sent from ANSI in time. We will have to do this at the October meeting.

7.0 Scheduled Transfer (ref. Rev 3.3)

7.1 Review general document changes

Changes were reviewed and generally accepted, but there were significant additional changes and edits. Don Tolmie was present and included these changes immediately in a new revision of the document.

7.2 Variable Block Sizes

Steph Bailey proposed back in May that ST should support variable Block sizes.

During the June, 1999 meeting debate on this idea resulted in some progress. The idea of using an optional payload to modify a CTS to request less than a full Block was advanced.

At the July meeting, the group moved to accept the change proposal written up by Don Tolmie with a few minor changes. These changes were reviewed and generally accepted.

One controversial issue was whether a particular mode of transfer (i.e., variable or constant) should be required. There was an almost even split on whether the standard should require one choice or the other, versus the opinion that this made unneeded extra work in some cases (particularly in the case of single purpose devices).

Other examples of incompatibility were raised and eventually the group agreed that a "profile" document would handle the transfer mode issue and other concerns that could not easily be resolved in the ST document. Roger Ronald volunteered to produce a profile in "standards" form. Roger agreed to contact Bob Snively for lessons learned in doing the Fiber Channel profile.

7.3 Request Transfer status bit addition

Jim Pinkerton had noted a problem encountered with acknowledgments during striping. Since Blocks could be received out of order, sending the last Block with the status requested bit set would not guarantee notification at completion of the Transfer, but only completion of that one Block (since the Blocks can be out-of-order).

Jim suggested that setting the status request flag in the RTS was an alternative that could be used to indicate that a status was desired after the Transfer completed. This suggestion was accepted, but it was also noted that the data source needed to have non-silent set on the last STU in the Transfer for this to work. A set of changes were marked up in the ST document. Later conversations (after the meeting) between Roger, Jim, and Don indicated that the non-silent bit needed to be set on all of the Blocks, since the last one might not be received last.

7.4 Other Changes

Some of the above changes pointed out an existing problem in ST. The status returned in a Request_State_Response can only be valid if the data destination knows which Blocks have been received. Some adapters may have a problem with this if the Blocks are sent silently.

There may also be a problem in Persistent Memory regions if Blocks are sent silently or out-of-order. In fact, the requirement to maintain state about "holes" in the Block sequence become impossible if the number of gaps is unbounded.

Don added a parameter and changed wording to bound this problem.

7.5 Processing plans

With Don in attendance and making changes during the meeting, much progress was made. But there were many changes and Don was not quite able to complete them all. Further, the time for review grew short and the group expressed nervousness about forwarding with so many changes.

But, this meeting did resolve the open technical concerns for ST and it looks reasonable and possible that ST will be forwarded in October.

8.0 HIPPI-LE (reference Rev 3.7)

8.1 Processing Status

The main gating item before forwarding HIPPI-LE is inclusion of the RFC number for the "ARP and IP Broadcast over HIPPI-800" RFC in clauses 4, 6.1.1 twice, and Annex B. According to Jean-Michel Pitet, the IETF RFC number should have been provided by this meeting, but it was not. Therefore, there was no progress made.

8.2 Other Proposed Changes

A call was made for anyone with requirements to change HIPPI-LE to come forward. No change proposals were made.

9.0 SCSI on ST Mapping (ref: Rev 1.2)

9.1 Project Proposal

Roger Ronald had noted during the June meeting that there would be a vote in the plenary session to forward the Project Proposal to T11 for further processing. This vote failed in the plenary due to lack of sufficient members voting.

The project proposal will be proposed again in August at the plenary. The chair requested that voting members do their best to be present and to cast their votes.

9.2 Document Review (ref: revision 1.2)

The latest version of SCSI on ST from Don Woelz was reviewed.

This review went well and although a number of changes were made, they were mostly of the word-smithing variety.

10.0 SGI Low Level API Proposal.

10.1 Document Review

There was no new version of the document to review. Consequently, no progress was made.

10.2 Document Editing Plans

It's not clear if anyone is willing to do what is needed to make the Level 0 ST API into a standard. No work was done in this area.

Both Jim Pinkerton and Greg Chesson have a boilerplate document in Framemaker format.

11.0 Other HIPPI items

11.1 Bridging to HIPPI-800

At the July meeting, Nicolas Droux provided an updated version of his early work on HIPPI-800 bridging. The updated document was available on the web site.

A read-thru of the document was started at the July meeting, but progress was made only through about 20-30% of the document before the meeting needed to end due to various participants leaving early.

Nicolas was not in attendance at this meeting, so there was no progress on this subject.

11.2 ARP and IP Broadcast over HIPPI-800

Jean-Michel forwarded this document to the IETF in December and again in February. We are waiting to get an RFC number for this RFC, so that it can be added to the HIPPI-LE document as a reference. Although an RFC number was expected by this time, it has not been received. Nothing further at this meeting.

11.3 IP and ARP over HIPPI-6400 (GSN)

An electronic copy of this document is still needed for posting on the web site.

During the April, 1999 meeting, Jean-Michel was present to defend his current HARP approach and successfully defended keeping the documents unchanged; at least until they moved forward in the IETF process. He noted that the offending "extra" packet formats disliked by some (requiring HIPPI-6400 hosts to know HIPPI-800 formats) could easily be removed per IETF rules at a later date, but that adding the format back would be difficult if it were really needed.

Nothing further at this meeting.

11.4 MIBS

The chair again noted that if no one was interested in MIBs, there was no good reason to keep them on the agenda. It was agreed that the HIPPI-800 switch MIB would be dropped from the agenda since only Essential/ODS was interested in producing it (they are the only known HIPPI-800 switch vendors).

11.4.1 HIPPI end-point MIB

If we want to pursue this MIB further then we need a champion for it. Nothing new at this meeting.

11.4.2 HIPPI-6400 MIB

Von Welch of NCSA has a draft document, based on HIPPI-6400-PH Rev 1.4, out for comment. Von

was not at this meeting and nothing new was reported.

11.5 Tutorial for HIPPI-6400 ULA use

Greg Chesson has obtained the format material from Bob Snively of Sun. Drafting of the actual text is pending. Greg verified that this item is not holding up forwarding ST.

12.0 Future meeting schedule

12.1 Attendance

The chair had sent an email to the reflector in June to admonish participants to try for better attendance. It's hoped that the pending change back to bi-monthly meetings will reduce the standards "attendance fatigue" and encourage participants to treat each meeting as important.

Although there was some improvement in attendance at the July meeting, attendance at the August meetings still lacked some key participants.

12.2 Plenary week, October 4-8, Ft. Lauderdale, FL

The October Plenary week location is in Ft Lauderdale, FL. The hotel information is available on the www.hippi.org web site. The tentative schedule is as follows. **Note that the T11.1 plenary meeting has been moved to occur one hour earlier than normal and that the optical session is still on Tuesday morning.**

Tuesday 10/5 **9 AM - 11 AM** HIPPI-6400-OPT

Tuesday 10/5 **11 AM - 9 PM** HIPPI ad hoc

Wednesday 10/6 **9 AM - 5 PM** HIPPI ad hoc

Wednesday 10/6 **5 PM - 6 PM** T11.1 Plenary

We expect to continue following this basic schedule (meeting on Tuesdays and Wednesdays) for future plenary meeting weeks.

12.3 Future meeting dates and locations

The group continues to feel that interim meetings are not required.

1999

Oct 4-8 Plenary Ft Lauderdale, FL JNI

Dec 6-10 Plenary Reno, NV Solution

2000

Feb 7-11 Plenary Huntington Beach, CA Qlogic

Apr 3-7 Plenary Palm Springs, CA Brocade

Jun 5-9 Plenary Boise, ID HP

Aug 7-11 Plenary ** open ** ?

Oct 2-6 Plenary Manchester, NH Hitachi

Dec 4-8 Plenary Austin, TX Crossroads

2001

Feb 5-9 Plenary So. California Qlogic

Apr 9-13 Plenary Palm Springs, CA Brocade

13.0 Review action items

The following action items were carryovers or were added at this meeting.

1. John Gibbon to consider development and documentation of HIPPI-6400 MIBs.
2. Jean-Michel Pittet to provide the IETF RFC number for "ARP and IP broadcast over HIPPI-800 (GSN)" to Don Tolmie and Roger Ronald.
3. Greg Chesson to draft an IEEE tutorial on HIPPI-6400 ULA usage and the ULAs special to HIPPI-6400.
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5. Greg Chesson to draft a top-level structure for the ST-API document.
6. Don Tolmie to make the edits to the Scheduled Transfer document (rev 3.3) agreed to at the July, 1999 meeting.
7. Eric Salo to update the level 0 ST API text with the changes agreed to at the May 1999 meeting.
8. Eric Salo to update the level 0 ST API text with the changes agreed to at the July 1999 meeting.
9. Eric Salo to specify field sizes in the ST API in accordance with the approach selected at the May, 1999 meeting.

10. Ed Cady or John Ellis to continue to provide the committee with information on progress towards a PCI version of the FCI-Berg Micro-pax connector.
11. John Ellis to provide the preferred listing of the FCI company name along with cable/connector drawings to Don Tolmie for inclusion in the HIPPI-6400-PH amendment.
12. Bob Newhall to provide information on the changes needed in HIPPI-6400-PH to allow passing EMI testing requirements.
13. Nicolas Droux to update the HIPPI-800 bridging document with the changes agreed to at the July, 1999 meeting.
14. Roger Ronald to contact Bob Snively for "lessons learned" about Fiber Channel profile documents.
15. Roger Ronald to prepare a SD-3 for a bulk transfer ST profile document.
16. Roger Ronald to start work on a bulk transfer ST profile document.
17. The Chair (Roger Ronald) to produce the minutes for the August, 1999 meeting.

14.0 Adjournment

The meeting was adjourned at 6 PM on the 4th of August. There were no objections.

Attendance

Name	Status	Company	Phone	E_mail
Suren Shah	O	C&M Corporation	860-779-4357	sshah@cm-corp.com
Bob Willard	P	Compaq Computer Corp.	978-493-5482	bob.willard@digital.com
John Ellis	A	FCI-Berg	717-938-7512	jellis@fciconnect.com
Stephen Bailey	A	Genroco	414-644-8700	steph@genroco.com
Donald Woelz	P	Genroco, Inc.	414-644-2505	don@genroco.com
Ron Salapatek	O	Genum Corp	905-632-2996	ron_s@genum.com
Tan Truong	P	IBM	512-838-7813	truongtm@us.ibm.com
Ian Philp	P	Los Alamos National Lab	505-667-4305	philp@lanl.gov
Roger Ronald	P	Power Micro Research	972-437-9461	rronald@pmr.com
Daniel C. Mansur	O	SGI	715-726-6547	danman@sgi.com
James Pinkerton	O	SGI	650-933-4943	jimp@sgi.com
Jeff Young	A	SGI/Cray Research	651-683-5536	jsy@cray.com
Don Tolmie	O	Tolmie Enterprises	505-662-7110	tolmie@concentric.net
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