

Accredited Standards Committee*

National Committee for Information Technology Standards (NCITS)

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Reply to: John Lohmeyer

To: T10 Membership
From: John Lohmeyer
Subject: SPI-3 Working Group Meeting -- April 7-8, 1999
Monterey, CA

Agenda

1. Opening Remarks
2. Approval of Agenda
3. Attendance and Membership
4. SPI-3 Topics
 - 4.1 Review of SPI-3 working draft [Penokie]
 - 4.2 QA and Glitch Filters (98-239r0) [Leshay]
 - 4.3 Packet Protocol Extensions (99-139r3) [Milligan/Penokie/Lamers]
 - 4.4 A Common CRC Method for Packetized and Legacy Devices (99-141) [Lamers] {May meeting}
 - 4.5 Report on April 6th Cable Performance Meeting (99-172) [Ham]
 - 4.6 Staged Contact Resistance (98-240r0) [Herrmann] {May meeting}
 - 4.7 Proposed Physical Layer Integrity Check Annex (98-235r3) [Lohmeyer]
 - 4.8 Protection for the Asynchronous Information phases (99-119r2) [McGrath/Evans/Elliott]
 - 4.9 Enabling Upper Byte Hamming (99-166r1) [Lamers]
 - 4.10 Fairness Feature Control in SPI-3 (99-160) [Elliott/Houlder]
 - 4.11 Groundwork for Expander Communication (99-169) [Lamers/Bastiani]
 - 4.12 Packetized cleanup and improvements (99-170) [Galloway]
 - 4.13 Slow DT Timings (99-155) [Milligan]
5. SPI-4 Topics
 - 5.1 Project Proposal for SPI-4 (Ultra320 SCSI) (99-140r1) [Lamers]
 - 5.2 Load Compensation (98-238r1) [Novak]
 - 5.3 Cable/System Simulation Issues [Wallace]
 - 5.4 Next Generation Cable Performance [Ham]
6. Meeting Schedule
7. Adjournment

Results of Meeting

1. Opening Remarks

John Lohmeyer, the T10 Chair, called the meeting to order at 9:00 a.m., Wednesday April 7, 1999. He thanked Larry Lamers of Adaptec for hosting the meeting.

As is customary, the people attending introduced themselves and a copy of the attendance list was circulated.

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2. Approval of Agenda

The draft agenda was approved with the following additions and changes:

- 4.13 Slow DT Timings (99-155) [Milligan]
- 5.4 Next Generation Cable Performance [Ham]

No agenda items were added during the course of the meeting.

3. Attendance and Membership

Attendance at working group meetings does not count toward minimum attendance requirements for T10 membership. Working group meetings are open to any person or organization directly and materially affected by T10's scope of work. The following people attended the meeting:

Name	S	Organization	Electronic Mail Address
Mr. Lawrence J. Lamers	P	Adaptec, Inc.	ljlammers@ieee.org
Mr. Vincent Bastiani	A#	Adaptec, Inc.	bastiani@corp.adaptec.com
Mr. Wally Bridgewater	A#	Adaptec, Inc.	wally@eng.adaptec.com
Mr. Tariq Abou-Jeyab	V	Adaptec, Inc.	tajeyab@corp.adaptec.com
Mr. Robert Frey	V	Advansys	bobf@advansys.com
Mr. Bill Galloway	P	BREA Technologies, Inc.	billg@breatech.com
Mr. Robert C. Elliott	P	Compaq Computer Corp.	Robert.Elliott@compaq.com
Dr. William Ham	A	Compaq Computer Corp.	bill.ham@digital.com
Mr. Ben-Koon Lin	P	Fujitsu (FCPA)	blin@fcpa.fujitsu.com
Mr. George O. Penokie	P	IBM Corp.	gop@us.ibm.com
Mr. John Lohmeyer	P	LSI Logic Corp.	lohmeier@ix.netcom.com
Mr. Frank Gasparik	V	LSI Logic Corp.	frank.gasparik@lsil.com
Mr. Alan Littlewood	V	LSI Logic Corp.	alanl@lsil.com
Mr. David Steele	V	LSI Logic Corp.	david.steele@lsil.com
Mr. Charley Riegger	A	Maxtor Corp.	charles_riegger@maxtor.com
Mr. Richard Moore	V	QLogic Corp.	r_moore@qlc.com
Mr. Patrick McGarrah	A	Quantum Corp.	pat.mcgarrah@quantum.com
Mr. Richard Uber	V	Quantum Corp.	duber@tdh.qntm.com
Mr. Farrokh Mottahedin	V	Quantum Corp.	farrokh.mottahedin@quantum.com
Mr. Duncan Penman	V	Quantum Corp.	dwpmail@aol.com
Mr. Gene Milligan	P	Seagate Technology	Gene_Milligan@notes.seagate.com
Mr. Mayank R. Patel	V	Seagate Technology	mayank_r_patel@notes.seagate.com
Mr. Robert Morris	P	Silicon Systems, Inc.	bob.morris@ti.com
Mr. Franklin Ng	A	Sun Microsystems Computer Co	franklin.ng@ebay.sun.com
Mr. Paul D. Aloisi	P	Unitrode Corporation	aloisi@unitrode.com

25 People Present

Status Key: P - Principal
 A,A# - Alternate
 O - Observer

L - Liaison
V - Visitor

4. SPI-3 Topics

4.1 Review of SPI-3 working draft [Penokie]

George Penokie lead a detailed review of SPI-3 Rev 4. This topic consumed most of the meeting time. Please refer to SPI-3 Rev 5 for the results of this review.

NOTE: Late in the day on Thursday, it was noted that the values in Table A.2 may define a range that is too narrow to hold over process and temperature. Also, there was an impromptu proposal to change other values in Annex A. George Penokie agreed to produce a written proposal (99-174) for discussion at the May SPI-3 working group meeting. John said the topic would be addressed Monday afternoon, May 3rd.

4.2 QA and Glitch Filters (98-239r0) [Leshay]

Bruce Leshay asked that this item be covered after item 4.11. Bruce then asked that this agenda item be dropped because 99-169, if accepted, will solve the problem Bruce had identified.

4.3 Packet Protocol Extensions (99-139r3) [Milligan/Penokie/Lamers]

Larry Lamers presented part of 99-139r3, which includes the changes requested at the Harrisburg meeting. He yielded the floor to Bill Galloway to cover item 4.12. Larry agreed to modify his proposal to be consistent with Bill's proposal. In absence of objections, the working group recommended that 99-139r4 be accepted by T10 for inclusion in SPI-3.

4.4 A Common CRC Method for Packetized and Legacy Devices (99-141) [Lamers] {May meeting}

Larry Lamers asked that this item be deferred until the May meeting.

4.5 Report on April 6th Cable Performance Meeting (99-172) [Ham]

Bill Ham reported on the Cable Performance meeting (see 99-172).

4.6 Staged Contact Resistance (98-240r0) [Herrmann] {May meeting}

This topic will be covered at the May working group meeting.

4.7 Proposed Physical Layer Integrity Check Annex (98-235r3) [Lohmeyer]

John Lohmeyer presented the latest revision of his proposal. A few improvements were suggested and John agreed to prepare a revision 4.

Gene Milligan moved and Larry Lamers seconded that the working group recommend that T10 accept 98-235r4 minus the margined integrity check for inclusion in SPI-4. John Lohmeyer moved and Duncan Penman seconded that the motion be amended to recommend acceptance of all of 98-235r4. The motion to amend passed 6:4:3. The main motion (now to recommend acceptance of all of 98-235r4) passed 7:3:3.

4.8 Protection for the Asynchronous Information phases (99-119r2) [McGrath/Evans/Elliott]

Bruce Leshay presented 99-119r2. This revision adds a rigorous description of the BCH code and it adds a description of the enabling/disabling mechanism proposed in 99-166r2. Most of the discussion centered on the enabling/disabling issues.

Pat McGarrah moved and Rob Elliott seconded that the working group recommend that T10 accept 99-119r3 (r2 as modified) for inclusion as an informative annex in SPI-3. The working group requests that T10 defer consideration on this proposal until Rev 3, drafted as an annex and including error detection properties, is available. The motion passed 8:4:3.

4.9 Enabling Upper Byte Hamming (99-166r1) [Lamers]

This item was covered under agenda item 4.8.

4.10 Fairness Feature Control in SPI-3 (99-160) [Elliott/Houlder]

Rob Elliott presented 99-160, which would add a method to enable/disable the fairness feature already included in SPI-3. Several suggestions for improvements were made and Rob agreed to prepare a revision 1.

4.11 Groundwork for Expander Communication (99-169) [Lamers/Bastiani]

Larry Lamers presented 99-169, which would require initiators to slow the timing on asynchronous phases sufficiently to ensure that snooping works for the QAS message and expanders. It was suggested that this requirement should only apply to SPI-3 initiators that support the QAS message and that the proposal should more clearly identify the exact changes desired in SPI-3. In SPI-4, this requirement should be placed on all initiators. Larry agreed to prepare a revision 1 for consideration at the May meeting.

4.12 Packetized cleanup and improvements (99-170) [Galloway]

Bill Galloway presented 99-170 on cleaning up and improving packetized protocol. Bill's proposal consists of three parts:

- 1) The treatment of data pointers in Packetized is inconsistent between reads and writes. Currently the data pointer is saved at the end of every "write" packet but only saved at the end of a good "read" packet. This complicates the design of the initiator. Reads and writes should be treated the same and the data pointer should be saved at the end of every data packet. Very few systems allow the target to retry data but in those that do, the target could use MODIFY DATA POINTERS for recovery on both commands.
- 2) Zero length data transfers should be prohibited (same reasons as 99-123r0).
- 3) The status information unit description should be changed to allow only one way to specify there is no sense information or no packetized failure information.

The group agreed that the proposal should be modified to state that the offset is zero at the start and end of the L_Q packet. Larry Lamers recommended that Bill re-word his proposed replacement for the second paragraph in 11.4.5 to put the conditions first. Bill agreed to revise his proposal.

4.13 Slow DT Timings (99-155) [Milligan]

Gene Milligan presented 99-155, which would change timing values for using DT signaling at slower synchronous speeds. There was general agreement and Gene agreed to draft the document in the form of a change proposal.

5. SPI-4 Topics

5.1 Project Proposal for SPI-4 (Ultra320 SCSI) (99-140r1) [Lamers]

Due to time constraints, this topic was not covered and will be placed on the May SPI-3 working group agenda.

5.2 Load Compensation (98-238r1) [Novak]

Due to time constraints, this topic was not covered and will be placed on the May SPI-3 working group agenda.

5.3 Cable/System Simulation Issues [Wallace]

Dean Wallace was unable to attend and requested by email that this topic be deferred to the May SPI-3 meeting.

5.4 Next Generation Cable Performance [Ham]

Due to time constraints, this topic was not covered and will be placed on the May SPI-3 working group agenda.

6. Meeting Schedule

The next meeting of the SPI-3 Working Group will be Monday, May 3, 1999 commencing at 1 p.m. recessing on Monday evening and continuing until 6 p.m. on Tuesday, May 4, 1999 at the Holiday Inn "The Center of NH" (603-625-1000) in Manchester, NH hosted by Hitachi Cable Manchester.

7. Adjournment

The meeting was adjourned at 7:15 p.m. on Thursday April 8, 1999.