Accredited Standards Committee*
NCITS, Information Technology
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  Reply to: Larry Lamers

To: Membership of T10

From: Lawrence J. Lamers (ljlamers@ix.netcom.com)

Subject: Minutes of SCSI Protocol Study Group
        Decemberr 4, 1997 --- Newport Beach, CA

  Agenda
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2. Attendance and Membership, Introductions
3. Approval of Agenda
4. Approval of Minutes
5. Document Distribution
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7. Old Business
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7.2 Performance Estimates for Low Fat Protocol (98-104) [Wilson]
7.3 Packetizing SPI (97-230) [Penokie/Williams]
7.4 LFP INQUIRY and MODE SENSE data format (97-241) [Lamers]
8. Call for Patents
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10. Action Items
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1. Opening Remarks

Larry Lamers convened the meeting at 9:00 am. He thanked Skip Jones of
Qlogic, Inc for hosting the meeting.

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

It was stated that the meeting had been authorized by T10 and would be
conducted under the NCITS and T10 rules and procedures. Ad-hoc meetings
take no final actions, but prepare recommendations for approval by the T10
technical committee. The voting rules for the meeting are those of the
parent committee, T10. For the ad hoc, other than straw votes, the voting
rules are: one vote per participating company.

The minutes of this meeting will be posted to the T10 Reflector and will be
included in the next T10 committee mailing.

2. Attendance and Membership, Introductions

Attendance at working group meetings does not count toward minimum
attendance requirements for T10 membership. Working group meetings are
open to any person or company to attend and to express their opinion on the
subjects being discussed.

The following people attended the meeting.

Mr. Tak Asami Adaptec, Inc.
Mr. Andrew Wilson Adaptec, Inc

Mr. Lawrence J. Lamers Adaptec, Inc.
Mr. Tom Martin Adaptec, Inc
Mr. George Penokie IBM Corp.
Mr. Skip Jones QLogic Corp.
Mr. John Lohmeyer Symbios Logic Inc.
Mr. Paul D. Aloisi Unitrode Corporation
Mr. Jeffrey L. Williams Western Digital Corporation

3. Approval of Agenda

The agenda was approved as modified.

4. Approval of Minutes

In the absence of objection the minutes of the previous meeting (see
97-282r0) were approved.

5. Document Distribution

T10/97-230r4 Packetizing SPI
T10/97-199r4 Quick Arbitrate & Select Proposal
T10/97-241r1 LFP INQUIRY and MODE SENSE data format
T10/98-103r0 Predicting Packetized SCSI Performance
T10/98-104r0 U3 Performance and Comparison
T10/98-105r0 Performance Something

6. Review of Old Action Items

4) Larry Lamers to investigate QAS 0x55 message timing issues. Completed.
5) George Penokie to revise the packetized proposal. Completed.

7. Old Business

7.1 SCSI LFP - Quick Arbitrate & Select Proposal (97-199) [Kosco]

Tak Asami review the changes to the current proposal. These include
addition of 8 ns REQ assertion during QAS message and QAS negotiated in
IUTR. As a result of the discussion the explicit detection sequences for
entering QAS were added as well as the requirement that REQ be asserted for
8ns for MESSAGE IN phases. It was requested that the implicit assumption
that QAS protocol follow normal asynch rules be added.

7.2 Performance Estimates for Low Fat Protocol (98-104) [Wilson]

Drew Wilson presented performance analysis scenarios depicting environments
that benefit from protocol enhancements. The modeling philosophy and
workload parameters were outlined with performance curves for Fast-40,
Fast-80 and Fast-80 with protocol enhancements.

John Lohmeyer presented a statement from Craig McCombs of Symbios (see
98-103). John stated he believed Craig's starting assumptions were
different.

George Penokie presented a slide on performance (see 98-105) based on input
from AS-400 folks. In this environment (minimum of 75% bus utilization)
further improvements in transfer speed without protocol reductions aren't
warranted.

7.3 Packetizing SPI (97-230) [Penokie/Williams]

George Penokie presented revision 4 of the proposal for a packet protocol
on parallel SCSI.

Several changes have been incorporated into this revision:

   The negotiated protocol/speed/width parameters take effect following
command phase is selection with attention;
   Retry's of an information unit out phase will require a MODIFY DATA
POINTERS message for a retry to occur;
   The legacy equivalent of a disconnect without saving data pointers for a
write operation doesn't exist.

The following addition was made as a result of the discussion:
   If selection without attention occurs the device will assume that the
logical unit is zero.

7.4 LFP INQUIRY and MODE SENSE data format (97-241) [Lamers]

The study group agreed to remove the MODE SENSE data portion of the
proposal since all the parameters are now negotiated with the IUTR message.

8. Call for Patents

The chair requested that anyone aware of any patents required for the
proposals be disclosed in accordance with the ANSI patent policy. See 7.2.

9. New Business

9.1 Proposal for End to End CRC (97-283) [Rob Basham]

Rob Basham presented an end to end CRC proposal to address data integrity
issues observed in systems. The CRC can be added at any point, but ends up
on the storage medium.

The intention is to provide CRC as data; the anchor points need to be
defined.

Rob was invited to return with a more developed proposal for the March
meeting. The topic will be transferred to the general SCSI working group.

10. Action Items

11. Meeting Schedule

The next SPI-3 protocol study group is scheduled for Monday, March 16, 1998
starting at 9:00am in the San Diego, CA.

12. Adjournment

The meeting adjourned at 7:00 p.m.