Accredited Standards Committee*
X3, Information Processing Systems

To: Membership of X3T10

From: Weber/Lohmeyer

Subject: Minutes of X3T10 SCSI Working Group November 8-9, 1994

Agenda

1. Opening Remarks

2. Attendance and Membership

3. Approval of Agenda

4. Physical Topics
    4.1 SCSI-3 Parallel Interface - Low Voltage (SPI-LV) (94-201) [Ham, Lohmeyer]
    4.2 Review of SPI Rev 14 [Lamers]
    4.3 Review of SCSI-3 Fast-20 Working Draft Document [Lamers]
    4.4 Fast-20 Case Study [Harris]
    4.5 Fast-20 Data [Ham]
    4.6 3.3 Volt SCSI (94-164r1) [Aloisi]

5. Protocol Topics

    5.1 SAM Mandatory vs. Optional Features [Monia]
    5.2 ACA Issues (94-189)
    5.3 System Recovery on 3rd Party Commands (94-184) [Houlder]
    5.4 Addressability of TARGET RESET task management function [Snively]

6. Command Set Topics
    6.1 Proposed INQUIRY Command Enhancements (94-188r6) [Weber]
    6.2 Exception Handling Selection Mode Page (94-190) [Penokie]
    6.3 Partition Mode Pages for Tape (94-152) [Lappin]
    6.4 Command Extensions for PCMCIA (94-203) [Joslin]
    6.5 Multiple Port Operations (94-233) [Snively]
    6.6 What Next for SPC? [Weber]

7. Other Topics

Results of Meeting

1.   Opening Remarks

John Lohmeyer, the Chair, called the meeting to order at 9:00 a.m., November 8, 1994. He thanked Jeff Stai of Western Digital 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 X3T10 and would be conducted under the X3 rules. Ad hoc meetings take no final actions, but prepare recommendations for approval by the X3T10 Technical Committee. The voting rules for the meeting are those of the parent committee, X3T10. These rules are: one vote per company; and any participating company member may vote.

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

2.   Attendance and Membership

Attendance at working group meetings does not count toward minimum attendance requirements for X3T10 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:

```
          Name            S        Organization        Electronic Mail Address
---------------------- --  --------------------- ------------------------
Mr. Richard Johnson     V
Mr. Rick Heidick        A   3M Company            usmmm54s@ibmmail.com
Mr. Norm Harris         P   Adaptec, Inc.         nharris@eng.adaptec.com
Mr. Lawrence J. Lamers A#   Adaptec, Inc.         ljlamers@aol.com
Mr. Sassan Teymouri     V   Adaptec, Inc.         sassan@eng.adaptec.com
Mr. Neil T. Wanamaker   P   Amdahl Corp.          ntw20@eng.amdahl.com
Mr. Charles Brill       P   AMP, Inc.             cebrill@amp.com
Mr. Michael Wingard     A   Amphenol Interconnect
Mr. Ron Roberts         P   Apple Computer        rkroberts@aol.com
Mr. John Lohmeyer       P   AT&T/ NCR             john.lohmeyer@ftcollinsco
                            Microelectronics      .ncr.com
Mr. Jason Albanus       P   Burr-Brown Corp.      Albanus_Jason@bbrown.com
Mr. Ian Morrell         P   Circuit Assembly Corp. crctassmbl@aol.com
Mr. Joe Chen            P   Cirrus Logic Inc.     chen@cirrus.com
Mr. Louis Grantham      P   Dallas Semiconductor  grantham@dalsemi.com
Mr. Michael Smith       A   Dallas Semiconductor  msmith@dalsemi.com
Mr. Charles Monia       P   Digital Equipment Corp. monia@starch.enet.dec.com
Mr. Ralph Weber        A#   Digital Equipment Corp. roweber@acm.com
Mr. William Dallas     A#   Digital Equipment Corp. dallas@wasted.enet.dec.com
Dr. William Ham        A#   Digital Equipment Corp. ham@subsys.enet.dec.com
Mr. I. Dal Allan        P   ENDL                  2501752@mcimail.com
Mr. Kenneth J. Hallam   A   ENDL                  3450626@mcimail.com
Mr. Edward Lappin       P   Exabyte Corp.         tedl@exabyte.com
Mr. Gary R. Stephens    P   FSI Consulting Services 6363897@mcimail.com
Mr. Pat Edsall          O   Hewlett Packard Co.   edsall@hpdmd48.boi.hp.com
Ms. Nancy Cheng         O   Hitachi Computer Products n_cheng@hitachi.com
Mr. George Penokie      P   IBM Corp.             gop@rchvmp3.vnet.ibm.com
Mr. Lansing Sloan       O   Lawrence Livermore Nat'l ljsloan@llnl.gov
                            Lab
Mr. Kim Minuzzo         V   Lawrence Livermore Nat'l minuzzo1@llnl.gov
                            Lab
Mr. Dean Wallace        P   Linfinity Micro
Mr. Robert Bellino      P   Madison Cable Corp.
Mr. Pete McLean         P   Maxtor Corp.          pete_mclean@maxtor.com
Mr. Skip Jones          P   QLogic Corp.          sk_jones@qlc.com
Mr. Edward A. Gardner   A   Quantum Corp.         gardner@acm.com
Mr. Gene Milligan       P   Seagate Technology    Gene_Milligan@notes.seaga
                                                  te.com
Mr. Gerald Houlder      A   Seagate Technology    Gerry_Houlder@notes.seaga
                                                  te.com
Mr. Scott Smyers        P   Sony Corp. of America scotts@lsi.sel.sony.com
Mr. Erich Oetting       P   Storage Technology Corp. Erich_Oetting@Stortek.com
Mr. Roger Cummings      A   Storage Technology Corp. Roger_Cummings@Stortek.com
Mr. Robert N. Snively   P   Sun Microsystems Computer bob.snively@eng.sun.com
                            Co
Mr. Vit Novak           A   Sun Microsystems, Inc. vit.novak@sun.com
Mr. Bill Boyd           O   Texas Instruments     bboy%mimi@magic.itg.ti.com
Mr. Kevin Gingerick     V   Texas Instruments     4307725@mcimail.com
Mr. Paul D. Aloisi      P   Unitrode Integrated   Aloisi@uicc.com
                            Circuits
Mr. Jeff Stai           P   Western Digital       stai@dt.wdc.com
                            Corporation
Mr. Tak Asami           A   Western Digital       asami@dt.wdc.com
                            Corporation
```

45 People Present

```
Status Key:  P    -  Principal
             A,A# -  Alternate
             O    -  Observer
             L    -  Liaison
             V    -  Visitor
```

3. Approval of Agenda

The proposed agenda was approved with the following additions:

    4.4 Fast-20 Case Study [Harris]
    4.5 Fast-20 Data [Ham]
    4.6 3.3 Volt SCSI (94-164r1) [Aloisi]
    5.4 Addressability of TARGET RESET task management function [Snively]
    6.5 Multiple Port Operations (94-233) [Snively]
    6.6 What Next for SPC? [Weber]
    7.4 Other Letter Ballot Results [Lohmeyer]

4. Physical Topics

4.1 SCSI-3 Parallel Interface - Low Voltage (SPI-LV) (94-201) [Ham, Lohmeyer]

John Lohmeyer described his project proposal for a parallel interface for low-voltage environments (94-201r0). Questions were raised regarding the scope of the project. John described the proposed document as a "delta document" to SPI. In John's scope, the document would **not** be a SPI-2.

Bill Ham asked if the study group, discussed at the last meeting, has taken root. John proposed that the study discussion occur immediately, at this working group meeting. John read the list of proposed items; battery-powered and lower voltage power supplies, and enhanced cabling, connection, and termination techniques.

Differences between low voltage and low power were discussed. Proposals were made for several different project proposals. Counter arguments were raised for a single, SPI-2 project proposal.

Paul Aloisi gave a formal presentation describing his thoughts about the issues that should be covered in the proposed SPI-LV project. Starting from the issues already discussed, John led a group effort to produce a list of next-generation SPI issues. The list was as followed:

    1. Incremental and/or replacement standards documents
    2. Connectors (32-bit, ..., high-density)
    3. Higher speeds
    4. Lower voltage
    5. Lower power
    6. Hot swap (tm?) ... further definition
    7. System considerations
    8. Ease of use
    9. Cable specifications
    10. Backplane specifications
    11. Alternate topologies
    12. Enhanced error detection/correction
    13. Adaptive performance
    14. Fair access
    15. TERMPWR distribution
    16. Shield effectiveness
    17. Longer cable lengths

Duncan Penman asked the telling question, "Now what do we do on that list?" Gene Milligan suggested that more than two projects would result from the list. Folding existing work, like Fast-20, into the

current SPI was suggested and rejected. Dal Allan asked Larry Lamers about the cost of putting SCAM in SPI. Larry said that the SCAM addition cost about 18 months. That is, SPI would have been a standard 18 months sooner if SCAM had not been added.

Dal asked about market need and project difficulty for each item. The following table was produced where, the markets where divided into Niche and Volume markets and these were further divided into Initiator (host) and Target (peripheral) segments. "H" means the feature is high priority, while "L" means the feature is low priority for the indicated market segment. The "Stds dev" column indicates an estimate of the time and effort to complete the standards documentation.

	Market				
	Niche		Volume		
	I	T	I	T	Stds dev
1. Types of Stds					
2. Connectors	H	L	L	L	Long
3. Higher speeds	L	L	L	L	Medium
4. Lower voltage			H	H/L	Short
5. Lower power			H	L	Long
6. Hot swap (tm?)	H	H			Short
7. System considerations					
8. Ease of use			H	H	Very Long
9. Cable specifications	H	L			Short
10. Backplane specifications	H	L			Short
11. Alternate topologies	L	L			Long
12. Error detection/correction	L	L			Long
13. Adaptive performance	L	L	L+	L+	Short
14. Fair access	L	L			Short
15. TERMPWR distribution	L	L	L	L	Long
16. Shield effectiveness	H	L			Medium
17. Longer cable lengths	H	L			Short

Having constructed the above list, the following subset seemed to be most interesting (that is, high priority and/or short development time):

    4. Lower voltage [Aloisi]
    5. Lower power (power management) [Aloisi]
    6. Hot swap (tm?) ... further definition [Aloisi]
    8. Ease of use (list of topics) [Harris]
    9. Cable specifications (smaller) [Ham]
    10. Backplane specifications [Ham]
    13. Adaptive performance [Lohmeyer]
    14. Fair access [Penman]
    16. Shield effectiveness [Ham]
    17. Longer cable lengths [Ham]

Parenthetical comments generally represent additions to the descriptions that were made while the responsible individuals were selected. Names in square brackets identify the people who signed up to bring proposals (or whatever) to the next general working group meeting.

John said that additional work on the SPI-LV project proposal would be deferred to the next working group meeting. Bill Ham requested that item 2 (connectors) be remanded to SFF. The people present agreed to Bill's request.

This briefly brought up the issue of bent connector pins, which had been discussed on the SCSI Reflector. John asked that anyone with actual examples of bent pins contact their connector vendors for analysis; it appears that only some organizations are experiencing these problems. The connector vendors are eager to help, but they cannot solve the problem without data.

4.2 Review of SPI Rev 14 [Lamers]

Larry Lamers announced that he has incorporated comments from Paul Aloisi and John Lohmeyer. Larry reported receiving no technical comments. He believes that SPI is done, except for some style and formatting issues. Larry believes that SPI is on track for forwarding to second public review at the X3T10 plenary meeting on Thursday.

Gary Stephens said that he has comments that Larry has not seen. Gary's comments were discussed in a line-by-line review of SPI. The first controversial issue was a normative reference to SCSI-2. The back reference to the A-cable forces the reference to SCSI-2. Other interesting issues were claims that the B-cable is mentioned, driving of lines during BUS FREE phase, confusion over de-glitching the RST signal, and concerns over whether a SCAM initiator must be able to perform normal initiator functions. All issues were resolved with either minor wording changes or no wording changes.

4.3 Review of SCSI-3 Fast-20 Working Draft Document [Lamers]

Larry Lamers announced that Fast-20 is in about the same shape as SPI. Larry believes that a letter ballot could taken after the November Plenary for forwarding Fast-20 to first public review.

Larry and Paul Aloisi discussed Paul's review comment regarding the location of terminators in a Fast-20 configuration. Paul objected to the note that says, "SCSI devices shall not include termination." Gene Milligan and John Lohmeyer postulated that the note was added to keep the node capacitance down. Skip Jones noted that the Plug-and-Play SCSI industry specification disallows any enabled terminators on devices.

John proposed that, if a switchable terminator is present, it shall contribute to the node capacitance budget for the device. Gene expressed concern that any change should be made based on a plenary vote. After some attempts to create the wording, John proposed that the issue be taken to the plenary with no recommendation from the working group.

Paul had a second concern regarding sinking regulators on active negation circuits. After some consideration, John suggested that the proposal will outlaw some existing regulated terminators. Again, John proposed that the issue be taken to the plenary with no recommendation from the working group.

Kevin Gingerick questioned the transient leakage current requirement. He said that many devices will fail the test all the time. Bill Ham suggested dropping the requirement for the first 10 nanoseconds.

Kevin ask for an explanation for the 200 pF load in the single-ended test circuit. Bill Ham, John Lohmeyer, and Sassan Teymouri tried to explain the reasoning behind the existing circuit. Part of the concern was how well the existing test circuit will model an actual system. Kevin argued that no capacitance is required to model a real system. Bill and Sassan suggested that around 100 pF would be appropriate.

After some discussion, the working group almost agreed on a maximum capacitance of 210 pF. A key part of the agreement was defining a maximum capacitance. Then, Sassan noted that use of maximum would generate uncertainty in many of the timing measurements. After further discussion, the working group returned to the original wording, pending someone measuring total bus capacitance in some real-world configurations.

6

4.4 Fast-20 Case Study [Harris]

Norm Harris reported on studies of three Fast-20 bus configurations; a 3 m 4 load configuration, a 1.5 m 8 load configuration, and an external/internal configuration with .75 m and 3 loads internal, and 1 m and 1 load external. The complete report can be found in document 94-232r0.

Norm's data compared assertion and negation times using various real-device capacitance loads. He also compared the affects produced by legacy and Fast-20 specified cables.

Norm's major conclusion was that cable construction (particularly inside a component box) are very significant in determining the limits to which Fast-20 configurations can be taken. In one example, Norm showed how poor internal cable construction in a CD-ROM produced capacitance values that were twice as bad as other equipment. Bill Ham expressed concern that the capacitance measurements might not be done as specified in the SPI. Bill noted that the measurements must be biased as specified in SPI, or the capacitance values might be much higher than they should be. Paul Aloisi showed some pertinent data regarding the effect of bias on capacitance measurements.

Norm reminded the working group that his data suggests good head-room in the Fast-20 specifications. Norm is confident that the specified configurations will work properly with Fast-20.

Next, Norm discussed his future plans. Norm's plan to study mixed 8-bit and 16-bit devices took the working group down a major blackhole. Bill described problems with 16-bit lines passing through 8-bit devices. Some lines have capacitance load, but others do not. Eventually, significant skew is introduced between the loaded and non-loaded lines.

4.5 Fast-20 Data [Ham]

Bill Ham presented new data regarding Fast-20 bus length and device capacitance. The goal was to better understand the 3 meter bus length with 8 devices (7 clustered at the far end). Bill discovered that to restore 'good' wave shapes, device capacitance must be lowered to somewhere between 3 pF and 10 pF. Bill also noted that a point-to-point bus will work with very good margins even at a length of 25 meters. That is, bus loading distribution makes a big difference.

Bill and Sassan Teymouri discussed cable construction effects on capacitance. Cables that are sliced at connection points (that is, the ribbon conductors are separated back several inches) introduce much more capacitance loading than cables that use insulation-displacement connectors. Bill described further configuration restrictions that improve the capacitance problems. For example, spacing the loads out evenly is much better than clustering devices.

4.6 3.3 Volt SCSI (94-164r1) [Aloisi]

Paul Aloisi presented his revised proposal for changes to SPI that support a 3.3 volt environment. Bill Ham, Pete McLean, and Dal Allan discussed TERMPWR tolerance limits, calling for different limits than Paul's document suggested.

Paul asked about the format that his work should address. Is the format for inclusion in SPI-2 or for some smaller scope document? No clear answer was provided.

Paul noted that his proposed icon for systems that cannot provide TERMPWR has been changed to a T overlaid with a circle-slash.

Paul discussed his proposal to allow TERMPWR to drop to 3.3 volts at the source. Bill noted that the proposal requires a regulated terminator. Bill also wanted to be sure that the 3.3 volts is the lowest limit

at the source. Some of the proposal seemed to indicate that the source lower limit would be 3.0 volts. Pete McLean said that JEDEC has accepted 3.3 volts plus or minus 0.3 volts. Paul noted that his proposal has been applied to CD-ROM drives connected to a laptop. In that situation, Paul's proposal is working well.

Paul agreed to do more work on 3.3 volt SCSI for the January meetings.

5. Protocol Topics

5.1 SAM Mandatory vs. Optional Features [Monia]

Charles Monia requested that the mandatory vs. optional features issue be left open until after the public review of SAM. Charles suggested that at least one public review comment will be made on the subject. John said that the process does not guaranteed a public review comment just because there is an outstanding letter ballot comment. Gary Stephens seemed certain that a public review comment will arrive.

5.2 ACA Issues (94-189)

Ralph Weber reported that 94-189r1 was approved at the September Plenary. Dal Allan reported problems with general understanding of ACA. Dal stated that the SSA and Fibre Channel interpretations of ACA are very different. Charles Monia took notes regarding the issues. Dal asked for a four page presentation on what ACA is expected to do. Charles volunteered to make the presentation.

After several people indicated that Bob Snively had problems with ACA, Bob described his concern with an FCP disk profile that required Control<ACA> be equal to one. Bob described a meeting whose results were (in Bob's opinion) that Control<ACA> is not necessary for well-constructed operating systems.

George agreed that Charles is the right person to make the four page presentation on ACA, as requested by Dal.

5.3 System Recovery on 3rd Party Commands (94-184) [Houlder]

Gerry Houlder described how third-party reservations will not help with error recovery on XOR-write commands. The XOR study group will continue working on this problem. Gerry said that this problem may resurface after much more study within the XOR study group. However, Gerry made no predictions regarding the ultimate results that might come from the XOR study group.

5.4 Addressability of TARGET RESET task management function [Snively]

Bob Snively raised concerns about TARGET RESET of targets buried inside storage arrays (as per the SCSI-3 Controller Commands document). Such targets are identified by both a target identifier and a logical unit identifier. Charles Monia asked about the possibility of creating a LUN RESET task management function. Bob will revise his proposal based on working group input.

6. Command Set Topics

6.1 Proposed INQUIRY Command Enhancements (94-188r6) [Weber]

Ralph Weber reviewed changes made to 94-188 as a result of discussion on the SCSI reflector. Then Ralph discussed the three unresolved issues.

After some discussion, the working group recommended that the operation code byte in the response data be changed from a constant FFh to the actual operation code being reported. A straw vote on this subject was 9 for changing the returned data, 0 for keeping FFh, and 1 for removing the field from the returned data entirely.

Ralph asked for advice about what to do when the data is stored on media and cannot be returned. Currently, the Valid bit would be returned as zero. Someone on the SCSI reflector suggested returning CHECK CONDITION. No one at the working group defended or supported the use of CHECK CONDITION in this case.

The last open issue concerned combining two CDB bits to form one 2-bit field instead of two 1-bit fields. Ralph and John Lohmeyer opposed the change because it would produce confusion for people switching from SCSI-2 to SCSI-3 (while the bit would work the same, it would have a different name and would not line up with SCSI-2 documentation). Ed Gardner and Gerry Houlder noted that the combined 2-bit field would be easier to explain. Larry Lamers noted that most currently shipping disks have vital product data pages, particularly for serial numbers. Thus, the SCSI-2 to SCSI-3 confusion issue should be taken seriously. Eventually, the no-change philosophy seemed to prevail.

George Penokie asked that the proposal be extended to return a list of supported operation codes. Ralph suggested that George's proposal is a separate issue, best introduced in a new proposal document. After some consideration, George agreed with Ralph. George began describing the proposal as a new vital product data page.

6.2 Exception Handling Selection Mode Page (94-190) [Penokie]

George Penokie described a long running problem (religious argument) regarding reporting of asynchronous events, which include predicted failure conditions. 94-190r2 is the current proposed solution for the problem. George reviewed the proposal in detail. George noted that the scope of the proposal has been limited to exceptions that report an additional sense code of FAILURE PREDICTION THRESHOLD EXCEEDED. Bill Dallas, Gary Stephens, and Gerry Houlder provided substantial advice regarding improvements in the proposal. After extensive discussion, George promised another revision of 94-190.

6.3 Partition Mode Pages for Tape (94-152) [Lappin]

Ted Lappin described his proposed cleanup of the Medium partition page, document 94-152r0. Ted asked about the notes that he has added. The notes push the implementation of the standard in certain directions. Ralph Weber questioned whether the notes can be made normative. Ted, Ralph, Bill Dallas, and Gary Stephens discussed how best to handle the notes.

Gerry Houlder questioned the use of REFORMAT as a bit name. Gerry was concerned that the bit might be confused with physical media formatting. Ted agreed to change the bit name. Bill Dallas asked that the proposal be revised to clarify the additional sense codes reported for various error conditions.

Ted agreed to discuss the proposal at the SSC working group meeting on Thursday morning. He also will revise the proposal.

6.4 Command Extensions for PCMCIA (94-203) [Joslin]

Philip Joslin was not present to discuss his document. John Lohmeyer tried to describe the proposal. The hardware to be covered by the proposal is a SCSI device that connects PCMCIA cards to the SCSI

bus. 94-203 proposes that block-ish PCMCIA devices be represented as block command SCSI LUNs. However, some changes are required in the SCSI-3 Block Commands.

In the absence of a presenter, the working group deferred action on this matter.

6.5 Multiple Port Operations (94-233) [Snively]

Bob Snively described two problems in multi-port systems; overriding reservations from a dead initiator and the cleanup of resources held by a dead initiator. Ralph Weber questioned how Bob's reservation override concept relates to the PORT STATUS command, added to the SPC in revision 3. Bob said that he has not had time to study SPC r3, because it arrived in the last two days.

Bob described his primary concept that all initiators are on all ports are viewed equally. Bob, Gerry Houlder, and Charles Monia discussed the specifics of this concept.

Bob described the need to cleanup resources held by a known-to-be-dead initiator. The ABORT TASK SET, OTHER INITIATOR task management function is proposed to resolve this. Charles questioned the how knowledge of an initiator identifier is available for use in the ABORT TASK SET, OTHER INITIATOR function. Ed Gardner and Scott Smyers suggested that the initiator identifier can be passed among the initiators, using any of several mechanisms that are beyond the scope of SCSI standards.

Gary Stephens noted that multiple SCSI Domains can be involved on both parallel and Fibre Channel SCSI. When that happens, initiator identifiers might not be unique. Bob described the solution, which is to simplify the parallel case and to use world-wide names in Fibre Channel.

Bob asked the working group to review the proposal offline and provide comments. Bob promised to review the PORT STATUS command for applicability to the problem. Bob said that he expected that revisions to 94-233 will be required before the document will be ready for inclusion in SCSI-3.

6.6 What Next for SPC? [Weber]

Ralph Weber asked the working group if the time had come for a letter ballot on SPC. There was some discussion of the outstanding proposals that affect SPC. Ralph noted that there are always outstanding proposals for SPC. There was no final resolution of the question.

7. Other Topics

7.1 German and Japanese Comments on CD 9316-1 (SCSI-2) [Lamers]

Larry Lamers said that he has received over 200 comments from Japan and Germany. Of these, about 15 are comments that are not obviously correct. Larry already has made all the obvious corrections. The working group reviewed our positions regarding the comments that do not concern obvious mistakes and/or clarifications in ANSI SCSI-2.

7.2 Report on PFA (Predicting Failures) Study Group Meeting (94-219) [Penokie]

George briefly reported on the results of the PFA (Predicting Failures) study group meeting. The minutes of the meeting can be found in document 94-219.

7.3 Letter Ballot Comments Resolution on X3T10 Standards Development Policy & Procedure (94-198) [Milligan]

On 94-208 (X3T10 Policies and Procedures), the letter ballot results were 47:7:1:3. Yes-with-comments ballots were received from Cirrus Logic, Digital Equipment, and Unitrode. No votes were received from Adaptec, Amdahl, AT&T, FSI, Oak Technology, Storage Technology, and Western Digital.

The attempt to resolve comments was lengthy, laborious, contentious, and frequently descended to picking nits. Time ran out before any of the comments from Amdahl, AT&T, FSI, Oak Technology, Storage Technology, or Western Digital could be discussed. John Lohmeyer proposed forming a study group to resolve the comments. John noted that this would require action from the plenary. The weary negotiators decided to move the effort to tomorrow's plenary meeting (see item 10.1.5 in 94-227).

7.4 Other Letter Ballot Results [Lohmeyer]

John Lohmeyer reported the results of five letter ballots. (N.B., all these ballot results were revised several times during the week, as newly found letter ballots were received and processed. John blamed this problem partly on his own FAX department, which had moved during the last two weeks. See 94-231 for the final results.)

On 94-204 (Logging Operations TIB), the letter ballot results were 53:0:0:5. There were no comments received on 94-204.

On 94-205 (Sequential Access Partitions TIB), the letter ballot results were 53:0:0:5. A yes-with-comments ballot was received from Seagate. Ted Lappin led a discussion of the comments from Gene Milligan (Seagate). There were some format issues that were deferred to Larry Lamers. A comment about use of "n" or "n+1" was rejected. Agreement was reached regarding the resolution of all comments.

The working group recommended specific resolution actions for all comments to the plenary. Note, all comments will be accepted except 6 (as noted above). Ted will revise the document based on the agreed changes as discussed in the working group. If the plenary approves, John will forward the revised document for further processing.

On 94-206 (SCC forwarding to 1st public review), the letter ballot results were 52:1:0:5. Yes-with-comments ballots were received from IBM and Unitrode. The no vote came from Seagate. George Penokie reported that the SCC working group resolved all comments, except those received from Unitrode. George noted that all the Unitrode comments are editorial and that many of them overlap the Seagate comments.

On 94-207 (SSA to SCSI-2 Mapping technical report project proposal), the letter ballot results were 50:2:0:6. The no votes came from Seagate and Unitrode. John reported that X3T10.1 has resolved the comments.

8. Meeting Schedule

The next working group meetings will be the week of January 10-11, 1995 at the Harrah's Lake Tahoe (702-786-3232) in Lake Tahoe, CA hosted by Silicon Systems. The room rates are $100.00 (plus 8% tax). The reservation deadline for these rates is December 1, 1994. The group name is ANSI X3T10 or X3T10 Meetings. The host contact is Steve Finch at: 714-573-6808, FAX: 714-573-6916, or EMAIL: steve.finch@us.ssi1.com.

9.　Adjournment

The meeting was adjourned at 5:43 p.m. on Wednesday November 9, 1994.