Accredited Standards Committee*
X3, Information Processing Systems

Doc. No.: X3T10/94-149r0
Date: July 20, 1994
Project:
Ref. Doc.:
Reply to: J. Lohmeyer

To: Membership of X3T10

From: Weber/Lohmeyer

Subject: Minutes of X3T10 SCSI Working Group July 19-20, 1994

Agenda

1. Opening Remarks

2. Attendance and Membership

3. Approval of Agenda

4. Physical Topics
   - 4.1 Fast-20 Progress Report (94-116,-131,-061r5) [Ham/Lamers/Lohmeyer]
     - 4.1.1 Fast-20 Node Capacitance (reflector messages) [McGrath]
     - 4.1.2 Fast-20 Slew Rate -- 540 ns vs. 520 ns [Frazier]
   - 4.2 SCAM Annex Proposal (94-133) [Gardner/Lamers/Lohmeyer]
   - 4.3 SCSI-3 SPI Issues (94-038r2) [Aloisi]
   - 4.4 Higher Density Connector [Lohmeyer]
   - 4.5 Transfer Period tolerance in SIP/SPI (94-142r0) [Galloway]
   - 4.6 New SDTR Message (reflector messages) [Asami]

5. Protocol Topics

   - 5.1 SAM Forwarding Comments Resolution (Project 994D) [Monia]
   - 5.2 SBP Forwarding Comments Resolution (Project 992D) [Lamers/Roberts]
   - 5.3 FCP Forwarding Comments Resolution (Project 993D) [Snively]
   - 5.4 Letter Ballot Comment Resolution on GPP Project Proposal for TR (94-124) []
   - 5.5 Message Handling Chart for SIP (94-032) [Houlder]
   - 5.6 AER vs Unit Attention [Scheible]

6. Command Set Topics
   - 6.1 Various SPC Topics [Weber] {Tuesday pm}
   - 6.2 Reserve & Release in SCSI-3 Primary Commands (94-106) [Weber] {Tuesday pm}
   - 6.3 SCSI-3 Download Microcode (94-80r1, 94-104r0) [McGrath, Cummings]
   - 6.4 SCSI-3 INQUIRY Command (94-079r1) [McGrath]

6.5 Data Recovery on Deferred Errors (94-067) [Houlder]
6.6 RAID 5 Support on SCSI Disk Drives (94-111) [Houlder]
6.6.1 ACA handling for Temporary Initiators (reflector messages) [Houlder]
6.7 Enhanced READ BUFFER command (94-128) [Lappin]
6.8 READ POSITION command for SSC (94-137) [Lappin]
6.9 Proposal for Control Mechanism for Reserved Handling (94-130) [Lohmeyer]
6.10 Scanner Window Descriptor Bytes Proposal (94-110) [Motoyama/Weber]
6.11 Format Proposal for Stream Devices (94-146) [Cummings]
6.12 Request for New Density Codes for Sequential Access Medium (94-147) [Cummings]
6.13 Request for a New ASC/ASCQ Code (94-147) [Cummings]

7. Meeting Schedule

8. Adjournment

Results of Meeting

1. Opening Remarks

Lawrence Lamers, the Vice-Chair, called the meeting to order at 1:05 p.m., July 19, 1994. He thanked Ralph Weber and Charles Monia of 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 task group. 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. Lawrence J. Lamers	A#	Adaptec, Inc.	ljlamers@aol.com
Mr. Neil T. Wanamaker	P	Amdahl Corp.	ntw20@eng.amdahl.com
Mr. Bob Whiteman	A	AMP, Inc.	whiteman@cup.portal.com
Mr. Jeff Rosa	P	Amphenol Interconnect	
Mr. Jerry Fredin	V	AT&T Global Info. Solutions	Jerry.Fredin@WichitaKS.NCR.COM
Mr. John Lohmeyer	P	AT&T/ NCR Microelectronics	john.lohmeyer@ftcollinsco.ncr.com
Mr. Sean Harrihan	V	Berg Electronics	
Mr. Joe Stoupa	O	Burr-Brown Corp.	Stoupa_Joe@bbrown.com
Mr. Steven Ramberg	A	BusLogic	stever@buslogic.com
Mr. Ian Morrell	A	Circuit Assembly Corp.	crctassmbl@aol.com
Mr. Joe Chen	P	Cirrus Logic Inc.	chen@cirrus.com
Mr. Bill Galloway	P	Compaq Computer Corp.	billg@bangate.compaq.com
Mr. Peter Johansson	P	Congruent Software, Inc.	pjohansson@aol.com
Mr. Timothy Feldman	A	Conner Peripherals	Tim.Feldman@conner.com
Mr. Louis Grantham	P	Dallas Semiconductor	grantham@dalsemi.com
Mr. Charles Monia	P	Digital Equipment Corp.	monia@starch.enet.dec.com
Dr. William Ham	A#	Digital Equipment Corp.	ham@subsys.enet.dec.com
Mr. William Dallas	A#	Digital Equipment Corp.	dallas@wasted.enet.dec.com
Mr. Ralph Weber	A#	Digital Equipment Corp.	weber@star.enet.dec.com
Mr. Edward A. Gardner	A	Digital Equipment Corp.	gardner@ssag.enet.dec.com
Mr. Mark Hamel	V	EMC Corp.	hamel@emc.com
Mr. Kenneth J. Hallam	A	ENDL	khallam@endlas.com
Mr. Edward Lappin	P	Exabyte Corp.	tedl@exabyte.com
Mr. Gary R. Stephens	P	FSI Consulting Services	6363897@mcimail.com
Mr. Robert Liu	P	Fujitsu Computer Products,Am	74503.1610@compuserve.com
Mr. Steve Caron	O	Furukawa Electric	
Mr. Jeffrey L. Williams	P	Hewlett Packard Co.	jlw@hpdmd48.boi.hp.com
Ms. Nancy Cheng	O	Hitachi Computer Products	n_cheng@hitachi.com
Mr. David McFadden	P	Honda Connectors	
Mr. George Penokie	P	IBM Corp.	gop@rchvmp3.vnet.ibm.com
Mr. Giles Frazier	O	IBM Corp.	gfrazier@ausvm6.vnet.ibm.com
Mr. Ken Cummings	O	IBM Corp.	kcummings@vnet.ibm.com
Dr. Gerald Marazas	A#	IBM PC Company	marazas@bcrvmpc2.vnet.ibm.com
Mr. Geoffrey Barton	P	Iomega Corp.	glbarton@iomega.com
Mr. Dean Wallace	P	Linfinity Micro	
Mr. Mario Montana	V	LSI Logic	
Mr. Robert Bellino	P	Madison Cable Corp.	
Mr. Bob Masterson	P	Methode Electronics, Inc.	
Mr. Skip Jones	P	QLogic Corp.	sk_jones@qlc.com
Mr. James McGrath	P	Quantum Corp.	JMCGRATH@QNTM.COM
Mr. Gerald Houlder	A	Seagate Technology	Gerry_Houlder@notes.seagate.com
Mr. Stephen G. Finch	P	Silicon Systems, Inc.	5723283@mcimail.com
Mr. David Deming	O	Solution Technology	
Mr. Erich Oetting	P	Storage Technology Corp.	Erich_Oetting@Stortek.com
Mr. Robert N. Snively	P	Sun Microsystems, Inc.	Bob.Snively@sun.com
Mr. Akram Atallah	O	SyQuest Technology Corp.	
Mr. Paul D. Aloisi	P	Unitrode Integrated Circuits	Aloisi@uicc.com
Mr. Francis Terry	V	Unitrode Integrated Circuits	Aloisi@uicc.com
Mr. Tak Asami	A	Western Digital Corporation	asami@dt.wdc.com
Mr. Duncan Penman	P	Zadian Technologies	penman@netcom.com

50 People Present

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

V - Visitor

3. Approval of Agenda

The proposed agenda was approved.

4. Physical Topics

4.1 Fast-20 Progress Report (94-116,-131,-061r5) [Ham/Lamers/Lohmeyer]

Bill Ham presented a short report on progress of the Fast-20 (20 mega-transfers per second) parallel SCSI bus. Bill noted that there are two open issues: 1) 3 meter length and 2) device capacitance loading rules. Bill showed some signal trace data that, in his mind, settles that 4 evenly-spaced devices will work with a bus length of 3 meters.

Bill followed the progress report with a brief proposal for two more parallel projects. Bill would like to build a Fast-40 parallel definition. Bill's second proposal was for a differential version that can be integrated into a single protocol chip.

4.1.1 Fast-20 Node Capacitance (reflector messages) [McGrath]

John noted that two different messages were heard (by two groups) at the May working group meeting. Some folks heard 20 pF and others heard 25 pF (the current SPI value). A major concern was mixing SCSI-2 and Fast-20 devices on a single bus. Also mentioned were the increased device costs associated with lowering the capacitance requirement to 20 pF.

After a lengthy discussion, John held a straw poll with the results of 13:13 for 20 pF vs 25 pF. Then, the debate continued. Larry suggested that the issue be tabled until better data is available in September.

4.1.2 Fast-20 Slew Rate -- 540 ns vs. 520 ns [Frazier]

To make the Fast-20 slew rate consistent with existing SPI, the Fast-20 slew rate needs to be changed from 540 mv/ns to 520 mv/ns. This change had been accepted a the Harrisburg meeting, but was omitted in the latest draft proposal. Larry agreed to make the change provided it was noted in the minutes.

4.2 SCAM Annex Proposal (94-133) [Gardner/Lamers/Lohmeyer]

John Lohmeyer proposed that 94-133 be voted on by the Plenary. If the vote passes, John said that the document will be given to the SPI editor for inclusion in SPI. John described the issues addressed by 94-133. Several of the corrections in 94-133 are just clarifications.

Jim McGrath asked what changes in 94-133 affect slaves. John and Larry felt that the unassigned (no ID) state may affect Jim's slave devices. Jim complained that such changes were unfair to his implementation. John noted that he is pleased that Quantum is an early adopter of SCAM, however there are no guarantees that proposals for proposed projects will not evolve as experience is gained. This particular change is rather small and should not affect compatibility except in unusual circumstances.

The topic was referred to the plenary meeting.

4.3 SCSI-3 SPI Issues (94-038r2) [Aloisi]

Paul Aloisi presented a revised proposal for changes in SPI Annex A. The changes concern hot swapping, how it affects TERMPWR glitches, and TERMPWR bypassing. There was little discussion of Paul's proposal.

Paul presented a V_{oh} proposal for a note regarding a V_{oh} maximum of 5.25V in SPI clause 7.1.2. This proposal generated more discussion. The location where the voltage is measured was an issue. Bill Ham claimed that no existing chips should be affected. Bill also noted that the proposal affects only active negation cases.

Further discussion revealed that the proposal can be interpreted to have a pervasive effect on the SPI. Bill and Paul presented additional data suggesting other alternatives. Eventually, everybody agreed that the proposal could not pass because most active-negation silicon drives signals higher that the proposed maximum V_{oh} of 3.24 volts in the proposal.

Next, Paul presented a proposal that terminators shall not source current above 3.24V. The working group realized that many laptops would violate the proposed new requirement. So, the group tried to generate wording that would be a consensus builder between laptop applications and the proposal. Consensus wording was not easy to find. So, limiting the proposal to Fast-20 seemed like the practical solution.

A revised proposal was addressed at the plenary meeting the next day.

4.4 Higher Density Connector [Lohmeyer]

Robert Whiteman presented an overview of a very high density connector that would be useful for multiple connector SCSI applications (such as RAID controller ISA/PCI cards) or laptops. Bob asked how the working group wants to proceed; refer to small form factor, or introduce the new connector into the standard.

John agreed to work with Bob to draft a list of requirements for the higher density connector. If the requirements list suggest further work, John will draft a project proposal.

4.5 Transfer Period tolerance in SIP/SPI (94-142r0) [Galloway]

Bill described a horror story where the lack of tolerances in synchronous transfer negotiations caused a drive to be inoperable in one of his system configurations. Then, he presented four specific changes that can be made to SPI to add tolerances on synchronous transfers.

Discussion in favor of the proposal noted the variations in oscillator crystals and possible (shown to be actual) implementations. Discussion opposed to the change was based on the 100% under-selected tolerance built in to the existing standard. After most all opinions had been expressed, Larry conducted a straw-poll for a plenary recommendation. The poll favored the proposal 17:3.

4.6 New SDTR Message (reflector messages) [Asami]

Tak reviewed the past few week's reflector discussion of transfer period in the Fast-20 environment. Because of the *4 multiplier on transfer period in the Synchronous Data Transfer Request (SDTR) message, transfer rates of 19.2 Mbyte/sec or 20.83 Mbyte/sec can be expressed. However, 20 Mbyte/sec cannot be exactly expressed.

Tak proposed defining a new synchronous transfer negotiation message. He was met with a resounding

chorus of "not in my drive!" Nearly all the group felt that the current definition, with its 4% transfer rate inaccuracies, was adequate. The recent approval of tolerances for transfer parameters further justified no message changes, for many group members.

The group strongly favored allowing a Transfer Period of 48 ns, but not defining a new synchronous transfer negotiation message.

5. Protocol Topics

5.1 SAM Forwarding Comments Resolution (Project 994D) [Monia]

Charles reviewed SAM revision 14 and document 94-129r1, which summarizes the letter ballot comments and responses. Some changes were identified. Some of those present noted that the SAM revision 14 document has not been available long enough for a reasonable review.

5.2 SBP Forwarding Comments Resolution (Project 992D) [Lamers/Roberts]

SBP letter ballot comments received by the May 1994 deadline are recorded in a proposed disposition document dated June 9, 1994. The changes resulting to the SBP document (X3T10 document 992D) are reflected in Revision 17 also dated June 9, 1994. Both documents above were included in the X3T10 June mailing. A limited number of each document were made available at both the July 20, 1994 Working Group meeting and the July 21, 1994 Plenary session. Submitters of the original comments have indicated satisfaction with the disposition appearing in Revision 17.

Subsequently, on July 15, a new proposal involving limited technical changes to SBP has been submitted by Apple Computer. This proposal (which is summarized below) represents a significant simplification in that there is now assurance that within SBP, no isochronous application data unit is split across two consecutive IEEE P1394 isochronous data block packets. Also, additional editorial comments to Revision 17 have been submitted by IBM. The combination of technical changes submitted by Apple and editorial changes submitted by IBM now requires publication of a new revision of SBP, Revision 18. This new version of SBP will be requested for inclusion in the August mailing and for discussion / consideration at the September meeting.

The technical proposal from Apple is a continuation of their isochronous topic comments submitted originally in May. The new proposal was developed with significant collaboration involving active members of the Digital VCR committee. Additionally, the proposal has been reviewed by certain major companies in the consumer electronics market.

Key elements of the Apple proposal are as follows:

(a) The IEEE 1394 isochronous data block packet is characterized as carrying an integer number of isochronous data payload packets. These isochronous data payload packets are specified by some isochronous application, such as a digital VCR using isochronous data. The key idea resulting in a significant simplification is that SBP now requires there to be an integer number of these payload packets within an isochronous data block packet.

(b) There is introduced in the isochronous login CDS a new parameter, L, which is the number of bytes within an isochronous data payload packet.

(c) The isochronous data rate parameter R is now expressed in units of isochronous data payload packets per second rather than its former characterization of bytes per second. The formula for rate R continues to be the same, namely R = (I + N/D).

(d) Since an isochronous data payload packet no longer spans two consecutive isochronous data block packets, there is no longer a need for the byte offset field in bytes 50 and 51 of the Stream Control CDS. Consequently, the byte offset parameter is removed and the associated field becomes reserved.

As stated, the plan for SBP is to incorporate the new comments from Apple and from IBM into Revision 18 which is to be distributed in the August X3T10 mailing. A copy of the Apple technical proposal also will be included within the August mailing so as to provide a clear indication of areas of SBP having been changed technically. A meeting vote will be requested at the September Plenary session for the purpose of accepting Revision 18 as a satisfactory resolution of all comments submitted relative to SBP as a part of its letter ballot in May. Authorization will be requested for forwarding Revision 18 to X3 for review and vote.

5.3 FCP Forwarding Comments Resolution (Project 993D) [Snively]

Bob Snively lead a discussion of letter ballot comments resolutions for FCP. Bob noted that he wants a forwarding vote at the Plenary. The comments and resolutions were distributed in the June mailing in document 94-109r1. Bob also reviewed the comments and discussion that have occurred since 94-109r1 was prepared.

Bob and Gary Stephens argued the mandatory/optional nature of ACA support in FCP to a stalemate. It appeared that the issue would go forward to X3 as an unresolved negative.

Two other disputed comments were resolved quickly when Bob agreed to add negotiating overlaid data to the PRLI operation. Then, a fourth contentious issue was raised and debated. The problem concerned a conflict between the CDB length and DL value.

Bob noted that PRLI/PRLO is not defined in any standard. So, Bob has incorporated PRLI/PRLO in FCP as normative annex A. Bob noted several editorial changes, such as uppercase and lowercase usage changes.

At the end of the discussion, Bob stated that all but one of the outstanding negatives have been resolved. That negative on mandatory vs. optional ACA support is not resolvable.

5.4 Letter Ballot Comment Resolution on GPP Project Proposal for TR (94-124) []

John announced the results of the letter ballot on approving the Revised GPP Project Proposal to make the project a Technical Report: 45:3:0:12 = 60 The negatives were from ENDL, Exabyte, and FSI. Please see the X3T10 minutes (94-150) for details.

After a brief discussion, John suggested that the Plenary should take a vote to forward the revised project proposal with negative comments. John said that he sees no opportunity for resolving the negative comments.

5.5 Message Handling Chart for SIP (94-032) [Houlder]

Gerry proposed adding an informative annex to the SIP describing the response to every known message combination. Gerry sought a working group recommendation that the proposal be accepted for inclusion in the SIP. The working group sent the proposal to the plenary without a recommendation.

5.6 AER vs Unit Attention [Scheible]

John Scheible raised the question, "Do we need an auto contingent allegiance like condition to lock devices during asynchronous event reporting of unit attention conditions?" A tortured discussion followed, as various members of the group tried to understand the needs and whether the existing SCSI standards cover the needs.

The group eventually decided to use AER if the device does not need to be locked and use CHECK

CONDITION/ACA if the device needs to be locked. Also, a combination of the two can be used for quick notification, followed by device locking.

6. Command Set Topics

6.1 Various SPC Topics [Weber] {Tuesday pm}

Ralph led a discussion of every editorial footnote in SPC revision 1. He received guidance that can be applied to writing revision 2. He was able to close all but 3 of the 27 footnote issues. Ralph agreed to prepare revision 2 for the August mailing.

In response to a discussion of when REQUEST SENSE data should be available, the group agreed that such information belongs in the SAM. Ralph will remove the SPC text that defines REQUEST SENSE data availability and clearing. Charles will put equivalent wording in the SAM, or revise the existing wording to include ideas found in the SPC revision 1.

The group noted that SPC revision 1 contains new text describing REQUEST SENSE data availability in the presence of power management features (from approved document 91-014r6). Charles agreed to include this information in the SAM.

6.2 Reserve & Release in SCSI-3 Primary Commands (94-106) [Weber] {Tuesday pm}

Ralph Weber reviewed the proposal for combining RESERVE with RESERVE UNIT and RELEASE with RELEASE UNIT, SAMinizing the RESERVE/RELEASE definitions, and adding 8-byte device IDs. He received specific guidance for drafting revision 2 of the document. A major issue was the interactions between reservations and individual commands. Ralph was instructed to write guidelines for defining command interactions and to propose specific reservation interactions text for each command in the SPC.

6.3 SCSI-3 Download Microcode (94-80r1, 94-104r0) [McGrath, Cummings]

Ken described changes to WRITE BUFFER to enhance (modernize) the download microcode capabilities. Ken received lots of advice on how to handle notifying the host that the device is or is not ready to received a microcode download. Ken plans to revise the document overnight and to seek a plenary approval vote for inclusion in SPC.

6.4 SCSI-3 INQUIRY Command (94-079r1) [McGrath]

At Jim's request, this proposal was deferred to the September meetings.

6.5 Data Recovery on Deferred Errors (94-067) [Houlder]

Gerry presented revision 1 of his proposal that extends the REQUEST SENSE data to add number of blocks and starting block when a deferred error occurs on a cached write. Gerry was asked to use READ BUFFER instead of READ to recover the data in the cache. The concern behind this seemed to be that Gerry's idea is implementation specific. Gerry agreed to work on the proposal to make it more acceptable.

6.6 RAID 5 Support on SCSI Disk Drives (94-111) [Houlder]

Gerry Holder presented document 94-111r2, RAID 5 Support on SCSI Disk Drives. The document defines a series of commands for drive assisted RAID 5 XOR functions. Concerns were raised about the lack of acceptance of the proposal by the RAID Advisory Board.

Larry proposed formation of a study group to prepare a detailed proposal and justification. The results of the study group would be returned to the working group and plenary for final action. (On Thursday, X3T10 authorized the study group meeting for Monday September 12th from 9:00 am to 12:00 noon.)

6.6.1 ACA handling for Temporary Initiators (reflector messages) [Houlder]

The secretary and vice-chair detected no discussion of this topic. The topic had been raised by Gerry Houlder because of the difficulty in temporary initiators doing error recovery on the proposed XOR commands. This topic will also be addressed by the XOR Commands study group.

6.7 Enhanced READ BUFFER command (94-128) [Lappin]

Ed presented a proposal to allow identification of buffers that can be downloaded using the READ BUFFER command. Much to Larry's surprise, the READ BUFFER command is an SPC command that applies to all device types. Ed wanted to add to the methods for determining what options are available. He saw it as part of the expanded INQUIRY work proposed by Jim McGrath (see **94-079**).

6.8 READ POSITION command for SSC (94-137) [Lappin]

Ed proposed some extension to the sequential-device READ POSITION command. Ed noted how the enhancements are quickly becoming necessary for tapes.

Larry took a straw poll and determined that the working group recommends incorporation this proposal in the SSC.

6.9 Proposal for Control Mechanism for Reserved Handling (94-130) [Lohmeyer]

John proposed that a bit be added to the Control mode page to define the device server's processing of reserved bit (the DRC bit). DRC=1 allows the device server to ignore reserved fields. DRC=1 represented the mode of operation favored by a recent Plenary meeting, which voted by a narrow margin to allow targets to not check reserved bits for zero. John showed a table for the modified Control mode page.

There was a lengthy discussion based on the SCSI-2 LUN bits that are now reserved. Giles Frazier wants the LUN=0 checking disabled in all cases.

The group recommended sending the proposal to the plenary with a recommendation that it be accepted.

6.10 Scanner Window Descriptor Bytes Proposal (94-110) [Motoyama/Weber]

Ralph Weber described the need to approve this request for ASC/ASCQ values that was almost approved a year ago.

6.11 Format Proposal for Stream Devices (94-146) [Cummings]

Ken presented a proposal for medium formatting in sequential devices. Ken noted that his request is based on a known need in the IBM product set. Bob Snively questioned the Immediate bit in the CDB. Whether a single partition could be formatted also was discussed. Ken agreed to revise the document based on the comments received at the meeting.

6.12 Request for New Density Codes for Sequential Access Medium (94-147) [Cummings]

Ken requested density codes for the IBM 3490E and for future IBM products. John noted that the reference must be removed when the SSC goes to ANSI. John proposed that the request be forwarded to the plenary. There were no objections.

6.13 Request for a New ASC/ASCQ Code (94-147) [Cummings]

Ken requested five ASC/ASCQ codes for medium magazine error conditions. Ralph Weber recommended specific ASC/ASCQ codes. John proposed that the request be forwarded to the plenary. There were no objections.

7. Meeting Schedule

The next working group meetings will be the week of September 12-16, 1994 at the Hotel Sofitel (713-445-9000) in Houston, TX hosted by Compaq. The room rates are $95.00 plus tax. The reservation deadline for these rates is August 11, 1994. The group name is ANSI X3T10. The host contact is Bill Galloway at TEL: 713-374-6732, FAX: 713-374-0514, (billg@bangate.compaq.com).

8. Adjournment

The meeting was adjourned at 8:47 p.m. on Wednesday July 20, 1994.