

Accredited Standards Committee*
X3, Information Processing Systems

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Date: October 21, 1992
Project:
Ref. Doc.:
Reply to: John Lohmeyer

To: Membership of X3T9.2

From: Lawrence J. Lamers, Secretary X3T9.2
John B. Lohmeyer, Chair X3T9.2

Subject: Minutes of X3T9.2 Plenary Meeting #102
Ft. Lauderdale, FL -- October 12-13, 1992

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Results of Meeting

1. Opening Remarks

John Lohmeyer, the Chair, called the meeting to order at 9:00 a.m., Monday October 12, 1992. He thanked Buzz Rigsbee of Boeing Computer Services for hosting the meeting.

John said that the X3 Secretariat prefers receiving membership changes on the "X3 Subgroup Membership Forms" which were available on the document table. He said that people should use the X3 forms to insure the X3 Secretariat has the latest membership information. The forms should be mailed to the X3 Secretariat with a copy to John Lohmeyer.

As is customary, the people attending introduced themselves. A copy of the attendance list was circulated for attendance and corrections. Copies of the draft agenda and the recent document register were made available to those attending. Information on X3T9.2 and Mailing Subscription Forms were made available.

2. Approval of Agenda

The draft agenda was approved with the following additions:

- 10.8 Procedure for Funding X3T9.2 Technical Editors [Lohmeyer]
- 10.9 Cache Control Revisited
- 10.10 How should SCSI address RAID environments?

3. Attendance and Membership

The membership requirements were reviewed. X3 rules permit one vote per organization. An individual from a new organization must attend two out of three consecutive plenary meetings. He/she may apply for voting membership the second meeting via a letter to the Chair of X3T9.2. The individual may vote at the second plenary meeting. Working group meetings do not count toward attendance requirements.

John Lohmeyer noted that the following changes in the voting membership had occurred since the last meeting: BusTek changed their company name to BusLogic; Soon Ahm Kang is the new principal member and John T. Aguilar is the new alternate member of Control Data Systems, Inc. (formerly Control Data Corp.).

Chuck Duquette and Dennis Mellinger of U.S. Design, Alan Ebright of Toshiba America, Janet Schank of Central Data, and Shahnad Nadershahi of Amdahl became voting members at the October meeting. Gary Peterson of Data General and Steve Finch of Silicon Systems having met the attendance requirements were re-instated as voting members.

With the termination of two organizations for nonattendance (see 3.1), the X3T9.2 voting membership is now at 65 organizations up from 61 at the last meeting. Enclosure (1) is the list of the people present at the meeting and enclosure (2) is the current X3T9.2 membership list.

3.1 Roll Call of Members In Jeopardy

The Chair said he had sent jeopardy letters to 15 people from 5 organizations: Advanced Micro Devices, Cirrus Logic Inc., Control Data Systems, Inc., National Semiconductor, and Tandem. The letters said that these organizations had failed to attend two of the last three plenary meetings and that their membership would be terminated unless they attended this meeting. The letters also informed these people of the committee's ability to retain their membership under special circumstances in spite of their failure to attend.

The Chair had received a phone call from Soon Ahm Kang, the principal member from Control Data Systems, Inc. pointing out that he had attended the Seattle meeting, but had failed to sign the attendance sheet. Therefore, the Control Data Systems membership was not in jeopardy.

Representatives were present from all of other organizations except: Advanced Micro Devices and Tandem. The P and A members from these organizations were changed to observer status.

The Chair also noted that membership can be terminated for not returning letter ballots. The rules are slightly different in that the chair must send warning letters to those organizations that fail to return letter ballots from two successive mailings. If the organization fails to return the next (third) letter ballot, then their membership is terminated.

4. Approval of Minutes - August Meeting Bellevue, WA (92-166 R0)

The minutes were approved as written.

5. Document Distribution

John Lohmeyer said that the committee mailing had gone out a bit later than usual, but he had still received his more than two weeks prior to the meeting. Members who have any problems with their mailing subscription should deal directly with Katrina Gray at (202) 626-5741.

Larry Lamers requested that all documents for the next mailing must be sent so as to be received by noon on Thursday, November 5, 1992. Documents received after this date will go into a subsequent mailing.

Larry Lamers reminded the committee of the requirements for document submission to be included in the committee mailing. Since X3T9.2 meets its CBEMA document archiving requirements by including CBEMA on the mailing list, documents included in the mailing must be suitable for microfilming. This means that high-quality, single-sided originals with adequate margins and proper identification must be submitted. Document X3T9.2/92-84 R1 contains the list of requirements for submissions.

As usual, minutes are also available on the SCSI BBS (719-574-0424) and will be distributed to the SCSI Reflector E-mail list. To be added to the SCSI Reflector, send an electronic message to: scsiadm@WichitaKS.NCR.COM.

The current document register is enclosure (3).

6. Liaison Reports and Call for Patents

6.1 ISO [Milligan]

Gene Milligan, the X3T9 International Representative, gave an oral report and later provided an electronic report to X3T9:

ISO Report 10/92

Inquiries were received concerning PCMCIA and future ISO/IEC work plans. X3T9/IR92015 was sent to Schwandt clarifying PCMCIA and its relationship to X3T9 standards work. The letter also reiterated the X3T9 strategy relative to synchronization of ANSI and ISO/IEC standards. It also mentioned the proposals that have already been submitted since the Milan meeting: FDDI Station Management (SMT) Rev 7.2; Fibre Channel (FC) Physical and Signaling Interface (PH) Rev 2.2; High-Performance Parallel Interface (HIPPI) Framing Protocol (FP); High-Performance Parallel Interface (HIPPI) Encapsulation of ISO 8802-2 Logical Link Control Protocol Data Units (LE); and High-Performance Parallel Interface (HIPPI) Physical Switch Control (SC).

New Project proposals have been prepared for the ATA and CAM dpANS as contributions for International Standards. The IR has not yet received the appropriate electronic text from X3T9.3 for the IPI-3 Disk and Tape projects.

The IR submitted X3T9/IR92016 to Kate McMillan, X3 Secretariat, for resolution of the Streaming Cartridge Tape Device Interface ISO/IEC 9317 stalemate. It requested that since there has not been any opposition to the standard expressed, it would be appropriate to first seek an editor from other member bodies prior to actually withdrawing the DIS and international

project. Consequently it requested that the X3 Secretariat take the necessary steps to request that the SC 25 Secretariat issue a call for a DIS 9317 project editor and that if the call does not result in an appropriate volunteer that the project be withdrawn. It stated that it should also be clear that the U.S. member body does not expect to volunteer a project editor.

AOW has started a project to develop an amended FDDI ISP which changes from an informative SMT Rev 6.2 to a normative SMT Rev 7.2. Their completion target is 12/92 but they also require that SMT reach the DIS stage. These two goals are not congruent.

It had been alleged that the SC 25 work on a Planning and Installation Guide for Customer Premises Cabling to Support Attachment of ISO 8802-5 Token Ring Stations was in conflict IEEE P802.5k. R.L. Pritchard of the IEEE Standards Department concluded that P802.5k was an obsolete draft of the ISO/IEC work and not conflicting.

A call was issued for experts in Command Control and Communications of Commercial Buildings for an SC 25 ad hoc. The SC 25 Secretariat prefers that only one expert should be named and Ron Clapman has volunteered.

JTC 1 has passed a resolution to form a special working group on Conformity Assessment. The US offer to provide the Secretariat and convener was accepted.

6.2 IT8 [Lohmeyer]

John Lohmeyer had nothing new to report.

6.3 Fibre Channel [Allan]

Dal Allan reported.

The Fibre Channel Physical document is in public review. The Enhanced physical work continues and includes hunt groups and improved bandwidth. There has been a series of debates on the mechanism of control. The Internet protocol is moving forward rapidly and the IBM ESCON protocol is making progress.

The fibre channel folks are curious as to what X3T9.2 is doing on the serial protocol issues.

6.4 Small Form Factor Industry Group [Allan]

Dal Allan reported orally and provided the following written report:

Form Factor patents issue - the HP 1.3 device is of concern - a letter from HP states that HP does not believe that form factor is a patentable issue, but not a blanket approval for reverse engineering.

Letter from Patent Office - Industry group to educated PO on form factor. There was a decision on a patent application from Conner by PO that form factor is not significant.

Another patent on mounting brackets.

2 versions of 69 pin ATA in pending approval within SFF. Cautious approval to continue

SFF and restructuring.

Unitized connector proposal - will be handled in SFF.

6.5 IEEE P1394 [Smyers]

Dennis Pak reported.

The intent is to finalized the input for the P1394 document by December '92. A final document for letter ballot is expected in January '93. The DS encoding has been adopted (8B10B has been dropped). The current length is 4.5 meters at 6 hops maximum. Configuration management is expected to be added in January '93. A letter ballot is forthcoming on the proposal to switch genders on the connector.

6.6 SSA Status [Scheible]

Larry Lamers reported. A project proposal has been developed to do the SSA project within a new task group. The next SSA meeting is scheduled is for October 26, 1992. Contact John Scheible for details at TEL: 408-284-7719 or E-MAIL: scheible@sjevm5.vnet.ibm.com.

6.7 IEEE P1285 Status

Dennis Pak reported. See document X3T9.2/92-204 for minutes of the "grass roots" meeting.

A co-located P1285 meeting is scheduled for Thursday, Nov 12, 1992 in Sunnyvale, CA. The next P1285 meeting is scheduled for Dec 11, 1992. The next grass roots meeting is scheduled for the week of Jan 25, 1993.

6.8 Call for Patents

This is a regular agenda item to identify any potential patent issues with developing standards. Patents that may be related to various X3T9.2 projects are a Conner Peripherals patent on power management, a Maxtor patent on spindle synchronization, and an AMD patent (5,113,098) on a glitch filter for SCSI signals.

A document is available from ANSI, "Procedures for the Development and Coordination of American National Standards", at no charge. The last page contains the ANSI patent policy.

7. Review of Old Action Items

- 1) John Lohmeyer will send document preparation information out on the SCSI reflector. **Complete.**
- 2) Larry Lamers will include grass roots meeting minutes in the mailing. **Dropped -- will be in the November mailing.**
- 3) John Lohmeyer will draft and/or plagiarize a patent notice for working draft documents. **Carry over.**
- 4) Larry Lamers and John Lohmeyer will complete the project proposals for the SCSI-3 command sets. **Complete.**
- 5) Larry Lamers will conduct a letter ballot on approving the response to the SCSI-2 public review comment. **Complete.**
- 6) Larry Lamers will conduct letter ballots on approving the command set project proposals. **Complete.**

8. Working Group and/or Project Status Reports

8.1 SCSI General Working Group (X3T9.2/92-194) [Lamers]

Larry Lamers reported on the last working group meeting. See 92-194 for details.

8.2 SCSI-2 Status [Lamers]

The final editing of the SCSI-2 document is proceeding and is expected to be completed by the end of October. The revised document will be sent through proper channels to the ISO editor for approval.

8.3 SCSI Common Access Method (CAM)

CAM is in its public review period that closes January 1, 1993.

8.4 AT Attachment Status (ATA)

The current revision of this document is 3.1. As a result of the Toronto working group, Dal Allan is preparing a revision 3.2.

8.5 SCSI-3 Architecture Model (SAM) Status [Monia]

Charles Monia reported that the input from the working group has been incorporated in the SAM document.

8.6 SCSI-3 Parallel Interface (SPI) Status [Lamers]

Larry Lamers reported that revision 7 was in the last mailing; revision 8 is under development. An SPI working group is scheduled for Wednesday. There are some difficulties with the way clause 10 is written; it needs to be re-constructed as services and indicators.

8.7 SCSI-3 Interlocked Protocol (SIP) Status [Lamers]

No change.

8.8 SCSI-3 Generic Packetized Protocol (GPP) Status [Stephens]

Gary Stephens reported that he rearranged pad bytes to sub-elements on four-byte boundaries. A revision 2 will be provided for the January mailing.

8.9 SCSI-3 Serial Bus Protocol (SBP) Status [Gardner]

At the last working group the Apple-DEC-IBM contingent agreed to agree on a serial protocol for use on P1394. Further information was promised for the plenary meeting (see agenda item 9.9 and document 92-199).

8.10 SCSI-3 Fiber Channel Protocol (FCP) Status [Snively]

Robert Snively reported that the FCP document was in the last mailing. It has engendered feedback and this will be incorporated in the next revision.

8.11 SCSI-3 Command Set (SCS) Status [Lamers, Stephens]

No activity.

8.12 Directly-Addressable Device Interface (DADI) [Lohmeyer]

John Lohmeyer reported that X3T9 had sent a letter responding to the HP No vote on approval of the DADI project proposal. A project number should be issued soon.

8.13 ATA Extensions [Lohmeyer]

The ATA Extensions project has been approved and given project number 948-D.

9. Old Business**9.1 Enhancement of Sequential Access for Medium Changers (92-006R1) [Stephens]**

Several medium changer commands are proposed for inclusion in the SCSI-3 Primary Commands. These functions are viewed as generic and useful to a large number of device types and should not require implementation of a second device type to be able to use those functions. The PREVENT ALLOW MEDIUM REMOVAL command is also proposed for inclusion in the primary commands.

Gary Stephens moved and Jeff Stai seconded that 92-006R1 be included in the SCSI-3 Primary Commands document. The motion carried 25:2:0.

George Penokie stated that the M-Changer bit should be byte 6 bit 6 of the INQUIRY data. The document should be revised to include this information.

9.2 Unitized Connector (92-139R1) for SCSI-3 [Cornaby]

The consensus was that since work on the unitized connector is being done in the SFF committee that X3T9.2 wait to see if a consensus develops in SFF.

9.3 PR Comments on BSR X3.221-199x, ATA (AT Attachment)

John Lohmeyer presented six draft response letters (three for registered comments and three for unregistered comments; Gene Milligan had indicated that he did not wish a response to his informal comment which was accepted). A letter ballot will be conducted on approving the response letters.

Dal Allan, the project editor, requested guidance on which items should be included in ATA and which should be deferred to ATA Enhanced. The corrections for DMA transfers and logical block addressing were accepted for inclusion in the ATA document without objection. The 44-pin SFF connector proposal, which uses a 50-pin 2 mm connector to provide additional keying and four vendor-specific pins was controversial.

Gene Milligan moved and Dal Allan seconded that the 44-pin SFF connector definition be included in the ATA document. Larry Lamers requested a role call vote. The chair ruled that this motion only required a simple majority. The voting results were:

Voting Organization	Name	Yes	No	Abs	NP
3M Company				1	
AMP, Inc.				1	
AT&T	Mr. John Lohmeyer	1			1
Adaptec, Inc.				1	
Amdahl Corp.	Mr. Shahnad Nadershahi	1			
Amphenol	Mr. Jeff Rosa	1			
Ancot Corp.				1	
Apple Computer	Mr. Dennis Pak	1			
Archive Corp.				1	
Berk-Tek, Inc.				1	
Bull				1	
Burndy				1	
BusLogic	Mr. Clifford E. Strang Jr.	1			
CMD Technology	Mr. Edward Haske	1			
Ciprico Inc.	Mr. Kurt Witte	1			
Cirrus Logic Inc.	Mr. Joe Chen	1			
Connector Ind. Consulting	-			1	
Conner Peripherals				1	
Control Data Systems, Inc				1	
DDK Electronics, Inc.				1	
Digital Equipment Corp.				1	
ENDL	Mr. I. Dal Allan	1			
Emulex Corp.				1	
Exabyte Corp.				1	
Foxconn International, In				1	
Fujitsu	Mr. Robert Liu	1			
Furukawa				1	
Future Domain				1	
Hewlett Packard Co.	Mr. Jeffrey L. Williams	1			
Hirose Electric U.S.A.				1	
Hitachi	Dr. Sam Karunanithi	1			
Honda Connector				1	
IBM Corp.	Mr. George Penokie	1			
Interphase Corp.	Mr. David Lawson	1			
Iomega Corp.	Mr. Robert D. Allgood	1			
JAE	Mr. David H. Shaff	1			
Madison Cable Corp.				1	
Maxoptix Corp.				1	
Maxtor Corp.	Mr. Lawrence J. Lamers	1			
Methode Electronics, Inc.	Mr. John Cannon	1			
Micropolis Corp.				1	
Molex Inc.				1	
NEC	Mr. Bruce Anderson	1			
NEK				1	
NIST				1	
National Semiconductor				1	
Panasonic (Matsushita)				1	
Quantum Corp.				1	
Ricoh Corporation				1	
SGS-Thomson				1	
Seagate Technology	Mr. Gene Milligan	1			
Silicon Systems, Inc.	Mr. Stephen G. Finch	1			
Sony Corp. of America				1	
Storage Technology Corp.				1	
Sun Microsystems, Inc.				1	
Texas Instruments				1	
Thomas & Betts				1	
Toshiba America, Inc.	Mr. Alan Ebright	1			
U.S. Design	Mr. Dennis Mellinger	1			
UNISYS				1	
Western Digital	Mr. Jeff Stai	1			
Woven Electronics	Mr. Doug Piper	1			
Yamaichi Electronics, Inc	Mr. Steve Drake			1	
Totals:		18	7	0	38 = 63

The motion carried 18:7:0:38.

It was agreed that the rest/resume functions and the download microcode commands should be deferred to the ATA Extensions project.

9.4 SCSI-3 Queuing Issues (92-141) [Penokie]

George Penokie moved and Charles Monia seconded that 92-141R5 be accepted for inclusion in SAM and SIP. The motion passed 26:0. [Special thanks are in order for George Penokie's persistance in developing the queuing model.]

9.5 Synchronization Status and Errors (92-130R1) [DeKoning]

No activity.

9.6 Proposal to add a disconnect unconditionally after command phase (92-133) [Smyers]

There was objection to tying the disconnect to specific commands. There was general agreement to remove the implementors note. A wording change was suggested to "shall not allow a data transfer phase on an initial connection." Larry Lamers suggested that a bit should be in the control byte for providing disconnect information. At this point the consensus was to do another revision on the proposal to incorporate some to these ideas.

9.7 ASC/ASCQ for Power-On Reset [Houlder] (92-162R1)

The revision 1 document was in the mailing. Gerry Houlder moved and Norm Harris seconded that 92-162R1 be accepted for inclusion in SCSI-3.

The motion carried 25:0:0.

9.8 SCSI-3 Architecture Model Issues [Monia]

Charles Monia recapped the items from the working group on addressing. See 92-194 for details.

The discussion turned to handling an AEN. The question of establishing an initiator ID was raised. It was suggested that an association header may be needed. Then the question was how to discover the Initiator ID before an I/O process has occurred. In AEN, the temporary target is always selected by the temporary initiator and the who-to-send-the-AEN-to needs be provided as a priori information. The target is not able to deduce the initiators from the I/O processes.

Bob Snively stated that his definition of TARGET ID is the name of an address of a particular physical node and LUN ID is the process/routine behind it is LUN.

Gary Stephens then requested the addition of a non-transport specific initiator handle of at least 96-bits in size. The consensus was that a proposal on paper is needed to continue this discussion.

The subject of target routines then came up with the proposal to remove them from SCSI-3. Gene Milligan moved and Ed Gardner seconded that Target Routines be removed from SCSI-3 and all the associated documents and the existing functionality of Target Routines be provided by enhancements through logical unit addressing.

Dal Allan moved and George Penokie seconded that the question be divided by document. The motion passed 21:4.

The first motion was that Target Routines be removed from the SCSI-3 Architecture Model and the existing functionality of Target Routines be provided through logical unit addressing. The motion

passed 21:4.

The second motion is that Target Routines be removed from the SCSI-3 Protocol documents and the existing functionality of Target Routines be provided through logical unit addressing.

Dal Allan moved and John Lohmeyer seconded to defer consideration until the December 1992 plenary. The motion failed 9:12.

The main (second) motion passed 13:8.

9.9 Serial Protocol Issues [Gardner, Smyers, et al]

Gerry Marazas presented an overview of a serial protocol for use on P1394. The material is in a fairly primitive state and needs substantial work, however the essential elements are there.

Jeff Stai moved and George Penokie seconded that 92-199 be accepted as the proposed working draft for the SBP project. The motion passed 29:0:0.

Gerry Marazas requested a straw poll on whether or not the sense offset be maintained as an unsigned 8-bit value. The overwhelming majority opposed the use of sense offset.

The next straw poll found a majority in favor of having a fully arbitrary relationship between command blocks and sense buffers.

The next straw poll found a majority opposed to SBP postulating a one-to-one relationship between command blocks and sense buffers.

The discussion jumped into queuing, linked commands, and how SBP deals with them. Ed Gardner express a opinion that linked commands are a needless complexity and sees no justification for the current proposal to support them. The discussion on the interaction of queuing and SBP was lengthy.

Chained commands, a feature of the proposed SBP, in a multi-initiator environment obviates the ORDERED queue tag. If the initiator model of the task set is followed and no ORDERED chained commands are used the present queuing model works. Support of isochronous services could disrupt ORDERED commands. Chained commands are in primarily to support isochronous; and since the expert on isochronous was not present the discussion was deferred.

9.10 SFF Submission for SPI Annex (92-170) [Allan]

Dal Allan presented the proposal from SFF for an annex defining 50- and 68-pin signal assignments for internal connectors. This document will be included in the next mailing for a plenary vote.

The intention is for the EIA CE2.0 committee to deal with the connector dimension specification and location of the connector within a form factor.

9.11 Active Termination Requirements [Wallace]

Dean Wallace made a brief presentation on active termination for 10 Megatransfers/sec. Active negation drivers are not always needed, particularly near the terminators. Active negation drivers are important when the device is in the middle of the bus. Good receivers are a critical part of a system that functions properly.

10. New Business**10.1 Letter Ballot results on Response to SCSI-2 Public Review Comment (92-175)**

John Lohmeyer presented the results of the letter ballot (X3T9.2/92-175) on approving the draft response (X3T9.2/92-147) to the public review comment (X3T9.2/92-146) received from U.S. Design. The response was approved 52-0-0-9 (Advanced Micro Devices, Berk-Tek, Bull/Zenith, Burndy, Connector Industry Consulting Group, DDK Electronics, Honda Connector, Micropolis, and Texas Instruments). John Lohmeyer accepted an action item to request X3T9 to approve the response.

10.2 Letter Ballot results on new SCSI-3 Project Proposals (92-176..180)

30-day letter ballots on five new project proposals were sent out with an October 2, 1992 closing date. John Lohmeyer presented the results of the letter ballots:

Letter Ballot	Proj Prop Doc #	draft Project Proposal
X3T9.2/92-176	X3T9.2/92-105R1	SCSI-3 Primary Commands (SPC)
X3T9.2/92-177	X3T9.2/92-106R1	SCSI-3 Block Commands (SBC)
X3T9.2/92-178	X3T9.2/92-107R1	SCSI-3 Stream Commands (SSC)
X3T9.2/92-179	X3T9.2/92-108R1	SCSI-3 Graphic Commands (SGC)
X3T9.2/92-180	X3T9.2/92-109R1	SCSI-3 Medium Changer Commands (SMC)

All five letter ballots were approved by votes of 52-0-0-9 (Advanced Micro Devices, Berk-Tek, Bull/Zenith, Burndy, Connector Industry Consulting Group, DDK Electronics, Honda Connector, Micropolis, and Texas Instruments). John Lohmeyer accepted an action item to request that X3T9 approve the five draft project proposals to replace the SCS project 854-D.

10.3 Project Proposal for Common Access Method (CAM-2) (92-154) [Dallas]

William Dallas gave a brief overview of the need for a CAM-2 project. A study group will be formed to investigate these needs. The meeting is scheduled for November 9, 1992 in Sunnyvale, CA.

A letter ballot will be conducted on the project proposal.

10.4 ATA Download Microcode Command (92-168) [McGrath]

No activity.

10.5 Review of new documents

All documents were dealt with under the appropriate agenda items.

10.6 Agenda for the November X3T9.2 General Working Group

The following draft agenda was generated for the November X3T9.2 Working Group meetings in Sunnyvale:

Draft Agenda
November '92 X3T9.2 Working Groups

1. Opening Remarks
2. Attendance and Membership
3. ATA and ATA Extensions (Monday afternoon)
 - 3.1 Review of ATA Rev 3.2 Draft Document
 - 3.2 ATA Download Microcode Command (92-168) [McGrath]
 - 3.3 Proposed REST/RESUME Functions (92-132) [Zangenehpour]
 - 3.4 Format Track LBA Proposal (92-185 R1) [Leach]
4. SCSI-3 Command Sets (SPC, SBC, SSC, SGC, and SMC) {Tuesday 9:00a}
 - 4.1 Synchronization Status and Errors (92-130) [Robison]
 - 4.2 Cache Control Revisited (90-21R4) [Milligan]
5. SCSI-3 Architecture Model (SAM) {Tuesday 10:00a}
6. Serial Protocol Topics {Tuesday 2:00p}
 - 6.1 SCSI-3 Serial Bus Protocol (SBP)
 - 6.2 SCSI-3 Fiber Channel Protocol (FCP)
 - 6.3 SCSI-3 Generic Packetized Protocol (GPP)
7. Directly-Addressable Device Interface {Wednesday 9:00a}
 - 7.1 Presentation on P1285 work [Chris Hamlin]
8. General WG Topics {Wednesday 10:00a}
 - 8.1 Proposal to add a disconnect unconditionally after command phase (92-133R2) [Smyers]
 - 8.2 Conformance Testing [Stephens]
 - 8.3 Report on CAM-2 Study Group Meeting [Dallas]
9. SPI Working Group {Wednesday 2:00p}
10. Working Group Schedule
11. Adjournment

10.7 Density Code Addition for Stream Devices (92-164R1) [Williams]

The September working group recommended that this proposal be accepted for SCSI-3. Jeff Williams moved and Skip Jones seconded that 92-164R1 be accepted for SCSI-3. The motion passed: 21:0:0.

10.8 Procedure for Funding X3T9.2 Technical Editors [Lohmeyer]

John Lohmeyer presented a proposal for funding the final edit process. This would serve to free up resources for work on projects in development.

John reported that there currently were 190 paid subscriptions.

Robert Snively moved and Jeff Stai seconded that 92-198 be approved with a fee of \$50. The motion passed 30:0:0.

John Lohmeyer accepted an action item to take the proposal to X3T9 for approval.

10.9 Cache Control Revisited

Gene Milligan requested that the Cache Control Page accepted for SCSI-3 be revisited. In question was whether the segment size is in bytes (as in the document) or in multiples of the logical block size. The current field size is only 16-bits wide, which limits reporting and setting large segment sizes. One can use the number of segments field to deal with larger segments, however their size cannot be reported. The consensus was that the document probably reflects the decisions made. Since there are some products that have implemented the proposal, no one was too excited about "fixing" the problem. [Chair's note: I added this item to the working group agenda to review the issue in a bit more detail.]

10.10 How should SCSI address RAID environments?

George Penokie stated that a number of issues exist in implementing SCSI in RAID environments. George prefers a study group approach that may or may not lead to the development of a standard. An initial meeting is scheduled for Monday, November 9, 1992 in Sunnyvale from 5:00pm to 8:00pm.

11. Review of Action Items

- 1) John Lohmeyer will draft and/or plagiarize a patent notice for working draft documents.
- 2) John Lohmeyer will take the editor's fund proposal to X3T9.
- 3) John Lohmeyer will take the SCSI-3 project proposals to X3T9 for further processing.
- 3) Larry Lamers will conduct a letter ballot on the CAM-2 project proposal.
- 4) Larry Lamers will conduct a letter ballot on the ATA response letters.

12. Meeting Schedule

The next meeting of X3T9.2 will be December 7-8, 1992 at the Catamaran Hotel (619-488-1081) in San Diego, CA hosted by Vitro Corporation. The room rates are \$99.00 including tax. The reservation deadline for these rates is November 16, 1992.

The plenary meeting schedule is:

Date	Location	Host
December 7-8, 1992	San Diego, CA	Vitro
February 15-16, 1993	Austin, TX	Motorola
April 19-20, 1993	St. Petersburg Beach, FL	AMP
June 21-22, 1993	Minneapolis, MN	Stanatek
[Locations and hosts below here are tentative]		
August 16-17, 1993	Colo Spgs, CO	NCR
October 11-12, 1993		
December 6-7, 1993	San Diego, CA	Vitro

12.1 Working Group Schedule

The General Working Group meeting schedule is:

Date	Location	Host
Nov 9-13, 1992	Sunnyvale, CA	Amdahl
Jan 11-15, 1993	Sunnyvale, CA	Tandem
Mar 15-19, 1993	Orange County, CA	Emulex
May 17-21, 1993	Santa Fe, NM	Los Alamos
Jul 19-23, 1993	Manchester, NH	DEC
Sep 13-17, 1993	Poughkeepsie, NY	IBM
Nov 8-12, 1993	Colo Spgs, CO	NCR

The schedule for the November working group week is (X3T9.2 related meetings are shown with an asterisk):

Day	Meeting	Times
Monday	Small Form Factor	9:00a - 1:00p
	ATA and ATA Extensions	2:00p - 5:00p (*)
	RAID Study Group	5:00p - 8:00p (*)
	CAM-2 Study Group	9:00a - 5:00p (*)
	IPI-3	9:00a - 5:00p
Tuesday	X3T9.2 General Working Group	9:00a - 8:00p (*)
	IPI-3	9:00a - 5:00p
Wednesday	X3T9.2 Working Group	9:00a - 1:00p (*)
	SPI Working Group	2:00p - 8:00p (*)
	FC-PH Services	9:00a - 5:00p
	FC-LT	5:00p - 8:00p
Thursday	SCSI Editors	8:30a - 5:00p (*)
	IEEE P1285	9:00a - 12:00n
	FC-PH	9:00a - 5:00p
	FC-LT w/Distributed Fabric	9:00a - 8:00p
	FC-O	1:00p - 5:00p
Friday	FC/SCI	9:00a - 12:00n
	FC-PH General	8:00a - 2:00p
	FC-O	8:00a - 2:00p

12.2 Authorization of Working Group Meetings

John noted that the working group meetings are required to operate under the same voting procedures as does X3T9.2 (that is, one vote per organization) and the results of a working group are not binding on the parent committee. This later requirement is why we have traditionally only used non-binding straw polls in working group meetings. Any issue where the voting rules would make a difference is automatically deferred to the plenary group.

John Lohmeyer moved and Larry Lamers seconded that X3T9.2 authorize the meetings listed with an asterisk in agenda item 12.1. The motion passed unanimously.

13. Adjournment

The meeting was adjourned at 5:30 p.m. on Tuesday October 13, 1992.

Meeting Attenders -- Enclosure (1)

Name	Status	Organization
Mr. Wayne Roen	A	3M Company
Mr. Norm Harris	P	Adaptec, Inc.
Mr. Shahnad Nadershahi	P	Amdahl Corp.
Mr. Charles Brill	P	AMP, Inc.
Mr. Bob Whiteman	A	AMP, Inc.
Mr. Jeff Rosa	P	Amphenol Interconnect
Mr. Michael Wingard	A	Amphenol Interconnect
Mr. Dennis Pak	O	Apple Computer
Mr. Christian Mollard	O	BULL Systems
Mr. Clifford E. Strang Jr.	P	BusLogic
Mr. Bob Gannon	O	C&M Corp.
Mr. Peter Robinson	O	C&M Corporation
Ms. Janet Schank	P	Central Data
Mr. Kurt Witte	P	Ciprico Inc.
Mr. Joe Chen	P	Cirrus Logic Inc.
Mr. Dave Weber	A	Cirrus Logic Inc.
Mr. Edward Haske	P	CMD Technology
Mr. Wayne Sanderson	O	Consultant
Mr. Michael Smith	S	Dallas Semiconductor
Mr. Greg McSorley	A	Data General Corp.
Mr. Charles Monia	P	Digital Equipment Corp.
Dr. William Ham	A	Digital Equipment Corp.
Mr. Edward A. Gardner	A	Digital Equipment Corp.
Mr. William Dallas	A	Digital Equipment Corp.
Mr. Terry Maezawa	O	EIE, America, Inc.
Mr. Skip Jones	P	Emulex Corp.
Mr. I. Dal Allan	P	ENDL
Mr. D. W. Spence	A	ENDL Associates
Mr. Robert Liu	P	Fujitsu Computer Products, Am
Mr. Mike O'Halloran	O	Fujitsu Microelectronics
Mr. Steve Caron	P	Furukawa Electric America
Mr. Jeffrey L. Williams	P	Hewlett Packard Co.
Dr. Sam Karunanihi	P	Hitachi Micro Systems, Inc.
Mr. George Penokie	P	IBM Corp.
Mr. Gerald Marazas	A	IBM Corp.
Mr. Gary R. Stephens	A	IBM Corp.
Mr. Larry Grasso	S	IBM Corp.
Mr. Giles Frazier	S	IBM Corp.
Ms. Gricell Co	S	IBM Corp.
Mr. David Lawson	P	Interphase Corp.
Mr. Robert D. Allgood	A	Iomega Corp.
Mr. David H. Shaff	P	JAE
Mr. Robert Bellino	P	Madison Cable Corp.
Mr. Lawrence J. Lamers	P	Maxtor Corp.
Mr. John Cannon	A	Methode Electronics, Inc.
Mr. Frank Samela	O	Methode Electronics, Inc.
Mr. Jim McGrath	A	Molex Inc.
Mr. Robbie Shergill	P	National Semiconductor
Mr. John Lohmeyer	P	NCR Corp.
Mr. Bruce Anderson	P	NEC Technologies Inc.
Mr. Bruce DeBree	P	NEK Cable, Inc.
Mr. Gene Milligan	A	Seagate Technology
Mr. Gerald Houlder	A	Seagate Technology
Mr. Patric Savage	V	Shell Development Company
Mr. Stephen G. Finch	P	Silicon Systems, Inc.
Mr. Roger Cummings	A	Storage Technology Corp.
Mr. Robert N. Snively	P	Sun Microsystems, Inc.
Mr. Dean Wallace	O	Texas Instruments
Mr. Leonard Dore	O	The JPM Company

Meeting Attenders -- Enclosure (1)

Name	Status	Organization
Mr. Alan Ebright	P	Toshiba America, Inc.
Mr. Dennis Mellinger	A	U.S. Design
Mr. Arlan P. Stone	A	UNISYS
Mr. Jeff Stai	P	Western Digital
Mr. Doug Piper	P	Woven Electronics

64 People Present

Status Key: P - Principal Member
A - Alternate Member
L - Liaison Member
O - Observer
S,V - Visitor

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Oct 21, 1992 - X3T9.2 Membership - Enclosure (2)

Mr. Alan R. Olsen (P) 3M Company Bldg. 236-GN-06 3M Center St. Paul, MN 55016 Phone: (612) 736-4821 FAX: (612) 737-2801	Mr. Robert C. Herron (A) 3M Company Bldg. 141-3S-03 P.O. Box 2963 Austin, TX 78769-2963 Phone: (512) 984-5807 FAX: (512) 984-3002	Mr. Wayne Roen (A) 3M Company 3M Center Bldg. 223-SN-01 St. Paul, MN 55144-1000 Phone: (612) 736-3149 FAX: (612) 736-1246	Mr. Richard Evans (O) 3M Company 6801 River Place Blvd. Austin, TX 78726-9000 Phone: (512) 984-6662 FAX: (512) 984-2184
Mr. Jim Havener (O) 3M Company Bldg A130-3N-25 P.O. Box 2963 Austin, TX 78769-2963 Phone: (512) 984-3583 FAX: (512) 984-6972	Mr. Norm Harris (P) Adaptec, Inc. 691 S. Milpitas Blvd. Milpitas, CA 95035 Phone: (408) 945-8600 x2230 FAX: (408) 262-2533	Mr. Thomas Newman (A) Adaptec, Inc. 691 S. Milpitas Blvd. Milpitas, CA 95035 Phone: (408) 945-8600 FAX: (408) 262-2533	Mr. Al Wilhelm (A) Adaptec, Inc. 691 S. Milpitas Blvd. Milpitas, CA 95035 Phone: (408) 945-2525 FAX: (408) 262-2533
Mr. Erik Falk (O) ADIC POB 2996 Redmond, WA 98073-2996 Phone: (206) 881-8004 FAX: (206) 881-2296	Mr. Harvey Scott (O) ADIC POB 2996 Redmond, WA 98073-2996 Phone: (206) 881-8004 FAX:	Mr. Percy R. Aria (O) Advanced Micro Devices 901 Thompson Place PO Box 3453 Sunnyvale, CA 94088 Phone: (408) 235-8022 FAX: (408) 235-8430	Mr. Sudhir Bhatnager (O) Advanced Micro Devices Box 3453 MS 59 Sunnyvale, CA 94088 Phone: (408) 235-4426 FAX: (408) 749-2825
Mr. Jim Kubinec (O) Advanced Micro Devices Box 3453 MS 70 Sunnyvale, CA 94088 Phone: (408) 987-2302 FAX: (408) 987-2800	Mr. Yun-Che Wang (O) Advanced Micro Devices 901 Thompson Pl. Box 3453 MS 70 Sunnyvale, CA 94088 Phone: (408) 987-2478 FAX:	Ms. Peggy Wu (O) Advanced Micro Devices 901 Thompson Pl. Box 3453 MS 925 Sunnyvale, CA 94086 Phone: (408) 235-8363 FAX: (408) 235-8430	Mr. George Tharakan (O) Advanced Vision Research 2201 Quince Dr. San Jose, CA 95131 Phone: (408) 434-1115 FAX: (408) 434-0968
Mr. Steven P. Ego (O) Aeronautics Inc. 12741 Research Blvd #500 Austin, TX 78759 Phone: (512) 258-2303 FAX: (512) 258-4392	Mr. Tony Castillo (O) Aeronautics, Inc. 12741 Research Blvd. Austin, TX 78759 Phone: (512) 258-2303 FAX: (512) 258-4392	Mr. Richard A. Stokken (O) Agfa Corp. M/S 200-3-5B 200 Ballardvale St. Wilmington, MA 01887 Phone: (508) 658-5600 x5211 FAX:	Mr. Steve Caldara (O) Alliant Computer Systems One Monarch Drive Littleton, MA 01460 Phone: FAX:
Mr. Shahnad Nadershahi (P) Amdahl Corp. 1250 E. Arques Ave. Sunnyvale, CA 94088-3470 Phone: (408) 944-3767 FAX: (408) 943-6620	Mr. Charles Brill (P) AMP, Inc. Mail Stop 210-20 P. O. Box 3608 Harrisburg, PA 17105 Phone: (717) 561-6198 FAX: (717) 561-6179	Mr. Bob Whiteman (A) AMP, Inc. P.O. Box 3608 M/S 26-17 Harrisburg, PA 17105 Phone: (717) 780-7481 FAX: (717) 780-6976	Mr. J. Michael Evans (O) AMP, Inc. PO Box 3609 MS 26-81 Harrisburg, PA 17105 Phone: (717) 780-4248 FAX: (717) 780-4850
Mr. Bill Garver (O) AMP, Inc. P.O. Box 3608 MS 140-013 Harrisburg, PA 17105 Phone: (717) 986-3223 FAX: (717) 986-1352	Mr. Bill Hurdle (O) AMP, Inc. 3800 Reidsville Rd. Winston-Salem, NC 27102 Phone: (919) 727-5623 FAX: (919) 727-5238	Mr. Lionel Shih (O) Ampex Corp. M/S 10-05 401 Broadway Street Redwood City, CA 94063 Phone: FAX:	Mr. Ken Talantino (O) Amphenol 358 Hall Ave. Wallingford, CT 06492 Phone: (203) 265-8901 FAX: (203) 265-8516
Mr. Keith Weber (O) Amphenol Corp. PO Box 4340 720 Sherman Ave. Hamden, CT 06514 Phone: FAX:	Mr. Jeff Rosa (P) Amphenol Interconnect 20 Valley St. Endicott, NY 13760 Phone: (607) 786-4222 FAX: (607) 786-4311	Mr. Michael Wingard (A) Amphenol Interconnect 20 Valley St. Endicott, NY 13760 Phone: (607) 786-4241 FAX: (607) 786-4311	Mr. David C. Andel (O) Amphenol Interconnect 20 Valley St. Endicott, NY 13760 Phone: (607) 786-4291 FAX: (607) 786-4311
Mr. Richard M. Ross (O) Amphenol/Spectra-strip 720 Sherman Ave. Hamden, CT 06514 Phone: (203) 281-3200 FAX: (203) 281-5872	Mr. Jan V. Dedeck (P) Ancor Corp. 115 Constitution Dr. Menlo Park, CA 94025 Phone: (415) 322-5322 FAX: (415) 322-0455	Mr. Scott Smyers (P) Apple Computer MS 60AR 20705 Valley Green Dr. Cupertino, CA 95014 Phone: (408) 974-7057 FAX: (408) 446-9154	Mr. Jon Abilay (A) Apple Computer Mail Stop 81-CS 20525 Mariana Ave. Cupertino, CA 95014 Phone: (408) 974-1807 FAX:
Mr. Harlan Andrews (A) Apple Computer Mail Stop 69-G 3535 Monroe St. Santa Clara, CA 95060 Phone: (408) 974-6430 FAX:	Mr. James Blair (A) Apple Computer 20525 Mariana Ave. Cupertino, CA 95014 Phone: (408) 862-3078 FAX:	Mr. Mike Eneboe (A) Apple Computer 20525 Mariani Ave. Cupertino, CA 95014 Phone: (408) 974-0615 FAX:	Mr. Ray Kubick (A) Apple Computer 3535 Monroe St. Santa Clara, CA 95051 Phone: (408) 974-5896 FAX: (408) 974-2898
Mr. Paul Wolf (A) Apple Computer 20525 Mariani Ave M/S 81-CS Cupertino, CA 95014 Phone: (408) 862-7720 FAX:	Mr. Jeff Chen (O) Apple Computer Mail Stop 69G 20525 Mariana Ave. Cupertino, CA 95014 Phone: (408) 974-2815 FAX:	Mr. Matt Gulick (O) Apple Computer Mail Stop 27-AL 10500 DeAnza Blvd. Cupertino, CA 95014 Phone: (408) 974-5382 FAX:	Mr. Jerry Katzung (O) Apple Computer Mail Stop 27-AJ 20525 Mariani Ave. Cupertino, CA 95014 Phone: (408) 974-2575 FAX:
Mr. Florin Oprescu (O) Apple Computer 3535 Monroe St. MS 691 Santa Clara, CA 95051 Phone: (408) 974-2354 FAX:	Mr. Dennis Pak (O) Apple Computer 3535 Monroe St., MS 69-G Santa Clara, CA 95051 Phone: (408) 974-4874 FAX: (408) 974-2898	Mr. Bill Infield (P) Archive Corp. 1650 Sunflower Ave. Costa Mesa, CA 92626 Phone: (714) 966-4788 FAX: (714) 966-2240	Ms. Adrienne Turenne (A) Archive Corp. 1650 Sunflower Ave. Costa Mesa, CA 92626 Phone: (714) 966-4759 FAX:
Mr. Robert Brown (O) Areal Technology 2075 Zanker Rd. San Jose, CA 95131 Phone: (408) 436-6871 FAX: (408) 436-6844	Mr. David W. Gordon (O) Array Technology Corp. Suite B 4775 Walnut St. Boulder, CO 80301 Phone: (303) 444-9300 FAX:	Mr. Chris Nieves (O) AST Research 16215 Alton Parkway Irvine, CA 92718 Phone: (714) 727-8494 FAX: (714) 727-9358	Mr. Peter M. Blackford (O) Astro Cable Company 50 Gardner St. Worcester, MA 01610-2508 Phone: (508) 754-3281 FAX: (508) 755-5189

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Mr. Joe Lawlor (A) AT&T 1100 E. Warrenville Rd. Rm 2A-429 Naperville, IL 60566 Phone: (708) 979-0133 FAX: (708) 979-0291	Mr. Richard Nesin (O) AT&T 1255 Cedar Crest Blvd. Allentown, PA 18103 Phone: (215) 770-2345 FAX:	Mr. Joe Abbatiello (O) Aura Electronics 50 McDermott Rd. North Haven, CT 06473 Phone: (203) 777-2541 FAX:	Mr. Gregory Fry (O) Ballard Synergy Corp. 10601 S. DeAnza Blvd. #212 Cupertino, CA 95014 Phone: (408) 257-8844 FAX: (408) 257-8913
Mr. Douglas Brenneke (O) Balden Wire & Cable 2200 US Hwy 27 South Richmond, IN 47374 Phone: (317) 983-5554 FAX: (317) 983-5825	Mr. Claude Allars (O) Bell Canada 220 Laurier W. 1640 Ottawa, Ontario Canada K1G 3J4 Phone: (613) 781-7675 FAX: (613) 563-4822	Mr. Tom Debiec (P) Berk-Tek, Inc. 132 White Oak Rd. New Holland, PA 17557 Phone: (717) 354-6200 FAX: (717) 354-7944	Mr. John F. Osborn (A) Berk-Tek, Inc. 132 White Oak Road New Holland, PA 17557 Phone: (717) 354-6200 FAX: (717) 354-7944
Mr. Tadashi Ehara (O) Elation Corp. 19050 Pruneridge Ave. Cupertino, CA 95014 Phone: (408) 864-7792 FAX:	Mr. Eric Lawrence (O) Brand-Rex Company 1600 West Main St. Willimantic, CT 06226 Phone: (203) 456-8000 FAX: (203) 450-7009	Mr. Kris Kowal (O) Bull HN Inc. 300 Concord Road Billerica, MA 01821 Phone: (508) 294-3333 FAX:	Mr. Schreck Philippe (O) BULL S.A. Rue Jean Jaures Les Clayes Sous Bois FRANCE 78340 Phone: (33)130806179 FAX: (33)130807285
Mr. Christian Mollard (O) BULL Systems Rue Jean Jaures Les Clayes Sous Bois FRANCE 78340 Phone: (33)130807128 FAX:	Mr. Fernando Ramirez (O) Burndy Corp. 8719 La Roca Fountain Valley, CA 92708 Phone: (714) 841-7095 FAX: (714) 837-0831	Mr. Edward Hrvatin (P) Burndy Corp. 51 Richards Ave. Norwalk, CT 06856 Phone: (203) 852-8553 FAX: (203) 852-8556	Mr. Heinz Piorunneck (A) Burndy Corp. Richards Ave. Norwalk, CT 06856 Phone: (203) 852-8480 FAX: (203) 852-6227
Mr. Philip Burdo (O) Burndy Corp. 38 Richards Ave. Norwalk, CT 06856 Phone: (203) 852-8350 FAX: (203) 852-8556	Mr. Clifford E. Strang Jr. (P) BusLogic 4151 Burton Dr. Santa Clara, CA 95054 Phone: (408) 492-9090 FAX: (408) 492-1542	Mr. Litko Chan (A) BusLogic 4151 Burton Dr. Santa Clara, CA 95054 Phone: (408) 492-9090 FAX: (408) 492-1542	Mr. Bob Gannon (O) CB&I Corp. PO Box 348 51 South Walnut St. Wauregan, CT 06387 Phone: (203) 774-4812 FAX: (203) 774-7330
Mr. Peter Robinson (O) C&M Corporation 51 South Walnut St. Wauregan, CT 06387 Phone: (203) 774-4812 FAX: (203) 774-7330	Mr. Geoffrey Hyman (O) Cables To Go 26 W. Nottingham, Suite 200 Dayton, OH 45405 Phone: (513) 275-0886 x319 FAX: (513) 275-5556	Mr. David Ruxton (O) Calluna Technology Limited Blackwood Road Eastfield Glenrothes Fife, KY7 4NP Scotland Phone: 44-(0)592-630810 FAX: 44-(0)592-630920	Mr. Bob MacDonald (O) Cambox 360 Second Ave. Waltham, MA 02150 Phone: (617) 890-6000 FAX:
Mr. Kumar Malavalli (O) Canstar 3900 Victoria Park Ave North York, Ontario M2H 3H7 Canada Phone: (416) 756-4100 FAX: (416) 756-3990	Mr. Bent Stoehasc (O) Canstar 3900 Victoria Park Ave North York, Ontario M2H 3H7 Canada Phone: (416) 756-4100 FAX: (416) 756-3990	Mr. Anthony P. Gabriel (O) Carol Cable Company 249 Roosevelt Avenue Pawtucket, RI 02860 Phone: (401) 728-7000 x2351 FAX: (401) 724-3446	Ms. Katrina Gray (L) CBEMA (X3 Secretariat) 311 First St., N. W. Suite 500 Washington, DC 20001 Phone: (202) 737-8888 FAX: (202) 638-4922
Ms. Kathleen McMillan (L) CBEMA (X3 Secretariat) 311 First St., N. W. Suite 500 Washington, DC 20001 Phone: (202) 737-8888 FAX: (202) 638-4922	Ms. Janet Schank (P) Central Data 1602 Newton Dr. Champaign, IL 61821 Phone: (217) 359-8010 FAX: (217) 359-6904	Mr. Raul Ugalde Moncivais (O) Centro de Invest. ConduMex P.O. Box - 49 Queretaro, Mexico Phone: 52 (463) 81802 FAX: 52 (463) 80717	Mr. Ron Sutton (O) Cherokee Data Systems, Inc. 1880 S. Flatiron Court Suite H Boulder, CO 80301 Phone: (303) 776-0721 FAX: (303) 776-9847
Mr. Al Consiglio (O) Cinch Connector 1501 Morse Ave. Elk Grove Village, IL 60007 Phone: (708) 981-6000 x4298 FAX: (708) 981-1718	Mr. Dave Dickinson (O) Cinch Connector 1501 Morse Ave. Elk Grove Village, IL 60007 Phone: FAX:	Mr. John Guennewig (O) Cinch Connector 1500 Morse Avenue Elk Grove Village, IL 60007 Phone: (708) 981-6000 x6070 FAX: (708) 981-1718	Mr. Dan Davies (O) Cipher Data Products, Inc. 10101 Old Grove Rd. San Diego, CA 92131 Phone: (619) 693-7750 FAX: (619) 693-4435
Mr. Kurt Witte (P) Ciprico Inc. 2955 Xenium Ln. Plymouth, MN 55441 Phone: (612) 559-2034 FAX: (612) 559-8799	Mr. Raymond Gilson (A) Ciprico Inc. 2955 Xenium Ln. Plymouth, MN 55441 Phone: (612) 559-2034 FAX: (612) 559-8799	Mr. Joe Chen (P) Cirrus Logic Inc. 3100 W. Warren Ave. Fremont, CA 94538 Phone: (510) 226-2101 FAX: (510) 226-2170	Mr. Lam Dang (A) Cirrus Logic Inc. 3100 W. Warren Ave. Fremont, CA 94538 Phone: (510) 226-2100 FAX: (510) 226-2170
Mr. John Geldman (A) Cirrus Logic Inc. 3100 W. Warren Ave. Fremont, CA 94538 Phone: (510) 226-2368 FAX: (510) 226-2170	Mr. Dave Weber (A) Cirrus Logic Inc. 3100 W. Warren Ave. Fremont, CA 94538 Phone: (510) 226-2367 FAX: (510) 226-2170	Mr. Edward Haske (P) CMD Technology 1 Vanderbilt Irvine, CA 92718 Phone: (714) 454-0800 FAX: (714) 455-1656	Mr. Steven F. Srebranig (O) Coilcraft, Inc. 1102 Silver Lake Rd. Cary, IL 60013 Phone: (708) 639-2361 FAX: (708) 639-1469
Mr. Ken Bush (O) Compaq Computer Corp. Box 692000 M050401 Houston, TX 77269-2000 Phone: (713) 374-5553 FAX:	Mr. William Galloway (O) Compaq Computer Corp. P.O. Box 692000 M050406 Houston, TX 77269-2000 Phone: (713) 374-6732 FAX: (713) 374-0514	Mr. Bob Peterson (O) Compuadd Inc. 12303 G Technology Blvd. Austin, TX 78727 Phone: FAX:	Mr. Rainer Wierczeiko (O) Computer Elektronik Infosys Am Kuemmerling 45 6501 Bonnheim Germany Phone: 01149-6135-770 FAX: 01149-6135-7777
Mr. Kris E. Swanson (O) Concurrent Computer Corp. 1 Technology Way Westford, MA 01886 Phone: (508) 692-6200 FAX:	Mr. Alfondo Vaca (O) Condumex Km 5 Carretera San Juan del Rio Tequisquiapan, Queretaro Apdo. Postal 100 MEXICO Phone: 467 2 0242 FAX:	Mr. Jose Manuel Villasenor (O) Condutel Km 5 Carr. San Juan del Rio Teq., San Juan del Rio Qro, Mexico P.O. Box -100 Phone: 52 (467) 20243 FAX: 52 (467) 21489	Mr. Peter Johansson (O) Congruent Software, Inc. 3998 Whittle Ave. Oakland, CA 94602 Phone: (415) 531-5472 FAX:

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Mr. Michael Lazar (P) Connector Ind. Consulting Gr 14 Pilgram Rd. White Plains, NY 10605 Phone: (914) 949-5450 FAX: (914) 761-1867	Mr. Stephen R. Cornaby (P) Conner Peripherals 2400 Trade Centre Longmont, CO 80503 Phone: (303) 651-2881 x332 FAX: (303) 772-0182	Mr. Paul Thompson (A) Conner Peripherals 2400 Trade Centre Longmont, CO 80503 Phone: (303) 651-2881 x334 FAX:	Mr. Gerard Pineau (O) Conner Peripherals 2400 Trade Center Longmont, CO Phone: (303) 651-2881 FAX:
Mr. Wayne Sanderson (O) Consultant 4217 Nancy Place Shoreview, MN 55126 Phone: (612) 484-0913 FAX: (612) 484-0913	Mr. Soon Ahm Kang (P) Control Data Systems, Inc. M/S ARH204 4201 N. Lexington Ave. Arden Hills, MN 55126 Phone: (612) 482-4114 FAX: (612) 482-4203	Mr. John T. Aguilar (A) Control Data Systems, Inc. M/S ARH204 4201 N. Lexington Ave. Arden Hills, MN 55126 Phone: (612) 482-4257 FAX: (612) 482-4203	Mr. Peter M. Blackford (O) Cooper Industries Div of Belden Wire and Cable P.O. Box 1980 Richmond, IN 47373-1980 Phone: (317) 983-5200 FAX: (317) 983-5825
Mr. Ron Edsall (O) Cray Computer Corp. 1110 Bayfield Dr. Colorado Springs, CO 80906 Phone: (719) 540-4153 FAX:	Mr. Steve Johnson (O) Cray Research Inc. 1050 Lowater Rd. Chippewa Falls, WI 54729 Phone: FAX:	Mr. George Battwick (O) Crossfield Electronics Ltd. Three Cherry Tree Lane Hemel Hempstead HP2 7RH England Phone: (0442) 230000 FAX: (0442) 232901	SCSI Development Dept (O) CSM Inc. 211 N. El Camino Real Encinitas, CA 92024 Phone: (619) 944-1228 FAX:
Mr. George Zisk (O) CW Industries 130 James Way Southampton, PA 18966 Phone: (215) 355-7080 FAX:	Mr. Bart Raudebaugh (O) Cygnal Systems 2560 Junction Ave. San Jose, CA 95134 Phone: (408) 954-1800 FAX: (408) 733-3358	Mr. Gary S. Peterson (P) Data General Corp. 4400 Computer Dr. MS D238 Westboro, MA 01580 Phone: (508) 870-8405 FAX: (508) 898-4673	Mr. Greg McSorley (A) Data General Corp. 4400 Computer Dr. Westboro, MA 01580 Phone: (508) 870-8829 FAX:
Mr. Lyford Beverage (O) Data General Corp. 4400 Computer Drive Westboro, MA 01580 Phone: (508) 870-8413 FAX: (508) 898-4673	Mr. David DesRoches (O) Data General Corp. 4400 Computer Drive Westboro, MA 01580 Phone: (508) 870-8410 FAX:	Mr. David G. Moore (O) Data General Corp. 4400 Computer Dr. MS E211 Westboro, MA 01580 Phone: (508) 870-8813 FAX:	Mr. John D. Farnsworth (O) Datapoint Corporation 8400 Datapoint Drive San Antonio, TX 78229-8552 Phone: (512) 593-7449 FAX: (512) 593-7929
Dr. Michael DeMois (O) Dataram P.O. Box 7528 Princeton, NJ 08543 Phone: (609) 799-0071 FAX: (609) 799-6734	Mr. Bob Reago (O) Dataram P.O. Box 7528 Princeton, NJ 08543 Phone: (609) 799-0071 FAX: (609) 799-6734	Mr. Bill Anderson (P) DDK Electronics, Inc. 401 Bentley St., Suite 9 Markham, Ontario Canada L3R 9T2 Phone: (416) 470-1346 FAX: (416) 470-1479	Mr. Ted Okada (A) DDK Electronics, Inc. 401 Bentley St., Suite 9 Markham, Ontario Canada L3R 9T2 Phone: (416) 470-1346 FAX: (416) 470-1479
Mr. James T. Benfer (O) Digi-Data 8580 Dorsey Run Road Jessup, MD 20794 Phone: (301) 498-0200 FAX:	Mr. Charles Monia (P) Digital Equipment Corp. 334 South Street SHR3-2/W4 Shrewsbury, MA 01545 Phone: (508) 841-6757 FAX: (508) 841-6100	Mr. William Dallas (A) Digital Equipment Corp. 110 Spit Brook Road ZK03-3/T79 Nashua, NH 03062-2698 Phone: (603) 881-2508 FAX: (603) 881-2257	Mr. Edward A. Gardner (A) Digital Equipment Corp. 301 Rockrimmon Blvd. CXO 1-2/N22 Col. Springs, CO 80919-2398 Phone: (719) 548-2247 FAX: (719) 548-3364
Mr. Douglas Hagerman (A) Digital Equipment Corp. SHR 3-2/W28 334 South Street Shrewsbury, MA 01545 Phone: (508) 841-2145 FAX: (508) 841-6100	Mr. William Ham (A) Digital Equipment Corp. 333 South Street Shrewsbury, MA 01545 Phone: (508) 841-2629 FAX: (508) 841-6100	Mr. John Morse (A) Digital Equipment Corp. Mail Stop ML05-2/G1 146 Main Street Maynard, MA 01754 Phone: (508) 493-5801 FAX: (508) 493-5131	Mr. Ralph Weber (A) Digital Equipment Corp. 110 Spit Brook Road ZK03-4/Y04 Nashua, NH 03057 Phone: (603) 881-1497 FAX: (603) 881-2257
Mr. Del Shoemaker (L) Digital Equipment Corp. 3020 Hamaker Ct. Suite 501 Fairfax, VA 22031 Phone: (703) 207-6359 FAX: (703) 207-6356	Mr. Duncan McDonald (O) Distributed Logic Corp. 1555 S. Sinclair Anaheim, CA 92806 Phone: (714) 937-5700 FAX: (714) 978-2420	Mr. Morteza K. Nistankari (O) Distributed Logic Corp. 1555 S. Sinclair St. Anaheim, CA 92806 Phone: (714) 937-5700 FAX:	Mr. Bruce Femmel (O) Document Imaging Systems Cor 543 Weddell Dr. Sunnyvale, CA 94089 Phone: (408) 734-5287 FAX: (408) 734-2692
Mr. Brian Irvine (O) Document Imaging Systems Cor 543 Weddell Dr. Sunnyvale, CA 94089 Phone: (408) 734-5287 FAX: (408) 734-2692	Mr. Steve Goldman (O) DPT 140 Candace Dr. Maitland, FL 32751 Phone: (407) 830-5522 FAX: (407) 260-5366	Mr. Tom Treadway (O) DPT 140 Candace Dr. Maitland, FL 32751 Phone: (407) 830-5522 FAX:	Mr. James A. Somerville (O) DuPont Barley Mill Plaza (22-22A2) Wilmington, DE Phone: (302) 992-5869 FAX: (302) 992-6578
Mr. Johnson Au-Young (O) Eastman Kodak Co. 460 Buffalo Road Rochester, NY 14652-3801 Phone: (716) 588-4932 FAX: (716) 588-2624	Mr. Roger Derr (O) Eastman Kodak Co. Mass Memory Division Mail Code 23801 Rochester, NY 14652-3801 Phone: (716) 588-0219 FAX: (716) 588-2624	Mr. D. Hekimi (L) ECMA Rue du Rhone 114 CH-1204 Geneva Switzerland Phone:	Mr. Arnold J. Roccati (O) EG&G WASC, Inc 1396 Piccard Dr. Rockville, MD 20850 Phone: (301) 840-3277 FAX:
Mr. Terry Maezawa (O) EIE, America, Inc. 21 Eastbrook Bend Suite 212 Peachtree City, GA 30269 Phone: (404) 487-5815 FAX: (404) 487-3301	Mr. Frank Youngflesh (O) ELCO Corp. Huntingdon Industrial Park Huntingdon, PA 16652-3117 Phone: (814) 234-8520 FAX:	Mr. Skip Jones (P) Emulex Corp. 3545 Harbor Blvd. P.O. Box 6725 Costa Mesa, CA 92626 Phone: (714) 668-5058 FAX: (714) 668-6815	Mr. Paul R. Nitza (A) Emulex Corp. 10877 West River Rd. Columbus Station, OH 44028 Phone: (216) 236-8504 FAX: (216) 236-3660
Mr. Chuck Micalizzi (O) Emulex Corp. 3545 Harbor Blvd. Costa Mesa, CA 92626 Phone: (714) 662-5600 FAX:	Mr. I. Dal Allan (P) ENDL Vice Chair, X3T9.2 14426 Black Walnut Ct. Saratoga, CA 95070 Phone: (408) 867-6630 FAX: (408) 867-2115	Mr. D. W. Spence (A) ENDL Associates P.O. Box 752 Round Rock, TX 78680 Phone: (512) 255-0339 FAX: (512) 255-0339	Mr. David Therrien (O) Epoch Systems 313 West Boston Post Rd. Marlboro, MA 01752 Phone: FAX:

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Mr. Anil Desai (O) Epson Technology Center 2250 Agnew Road Santa Clara, CA 95054 Phone: (408) 986-0115 FAX: (408) 986-0115	Mr. Neramo Tapi (O) Ericsson Telecom AB VB/ETX/TM/FR Elektravagen 49 12625 Stockholm, Sweden Phone: 46 8 7193759 FAX: (408) 986-0115	Mr. Edward Lappin (P) Exabyte Corp. 1685 38th Street Boulder, CO 80301 Phone: (303) 442-4333 FAX: (303) 442-5146	Mr. Rex Vedder (A) Exabyte Corp. 1745 38th St. Boulder, CO 80301 Phone: (303) 442-4333 FAX: (303) 442-4269
Mr. Al Youngwerth (O) Extended Systems 6123 Meeker Ave. Boise, ID 83704 Phone: (208) 322-7575 x6041 FAX: (208) 377-1906	Mr. Dennis Rash (O) FileNet Corp. 3565 Harbor Blvd. Costa Mesa, CA 92626 Phone: (714) 966-3209 FAX: (714) 966-3288	Mr. Dale McNamara (O) Flexstar, Inc. #101 2040 Fortune Dr. San Jose, CA 95131 Phone: (408) 946-1445 FAX: (714) 966-3288	Mr. Jeff Winsor (O) Flexstar, Inc. #101 2040 Fortune Dr. San Jose, CA 95131-1823 Phone: (408) 946-1445 FAX: (714) 966-3288
Mr. Paul Kuphal (O) Formation, Inc. 823 East Gate Drive Mt. Laurel, NJ 08054 Phone: FAX:	Mr. Stan Sharp (P) Foxconn International, Inc. 930 West Maude Ave. Sunnyvale, CA 94086 Phone: (408) 749-1228 FAX: (408) 749-1266	Mr. Nick Ladas (A) Foxconn International, Inc. 590 W. Lambert Rd. Brea, CA 92623 Phone: (714) 256-1888 FAX: (714) 256-2068	Mr. Bob Thornton (O) Fujitsu Components of Amer. 3330 Scott Blvd Santa Clara, CA 95054 Phone: (408) 922-8932 FAX: (408) 428-0640
Mr. Robert Liu (P) Fujitsu Computer Products, Am 3055 Orchard Dr. San Jose, CA 95134 Phone: (408) 894-3790 FAX: (408) 894-3901	Mr. Jim Luttrull (A) Fujitsu Computer Products, Am 3055 Orchard Dr. San Jose, CA 95134 Phone: (408) 432-1300 FAX: (408) 894-3901	Mr. Mike Nelson (O) Fujitsu Europa Ltd 2 Longwalk Rd. Stockley Pk. Uxbridge Middlesex UB11 1AB Phone: 01-573-4444 FAX: (714) 256-1888	Mr. Mike O'Halloran (O) Fujitsu Microelectronics 3545 N. First St. Bldg 1 San Jose, CA 95134-1804 Phone: (408) 922-9379 FAX: (408) 432-9044
Mr. Joel Urban (O) Fujitsu Microelectronics 2545 North First Street Bldg 1 San Jose, CA 95134-1804 Phone: (408) 922-8928 FAX: (408) 428-0640	Mr. Steve Caron (P) Furukawa Electric America 200 Westpark Dr. Suite 190 Peachtree City, GA 30269 Phone: (404) 487-1234 FAX: (404) 487-9910	Mr. Fred Yamamoto (A) Furukawa Electric America 200 West Park Dr. Suite 190 Peachtree City, GA 30269 Phone: (404) 487-1234 FAX: (404) 487-9910	Mr. Erwin Hauck (P) Future Domain 2801 McGaw Ave. Irvine, CA 92714 Phone: (714) 253-0495 FAX: (714) 253-0913
Ms. Chris Borgers (A) Future Domain 2801 McGaw Ave. Irvine, CA 92714 Phone: (714) 253-0503 FAX: (714) 253-0913	Ms. Lingling Polican (A) Future Domain 2801 McGaw Ave. Irvine, CA 92714 Phone: (714) 253-0446 FAX: (714) 253-0913	Mr. Neill Wood (O) Hal Computer Systems, Inc. 1315 Dell Ave. Campbell, CA 95008 Phone: (408) 379-7000 FAX: (714) 253-0913	Mr. Jeffrey L. Williams (P) Hewlett Packard Co. P.O. Box 39 Boise, ID 83707 Phone: (208) 323-5030 FAX: (208) 323-2896
Mr. Kurt Chan (A) Hewlett Packard Co. 8000 Foothills Blvd MS R5NF2 Roseville, CA 95747-6588 Phone: (916) 785-5621 FAX: (916) 785-2875	Mr. Dave McIntyre (A) Hewlett Packard Co. Disk Memory Div. 11413 Chinden, MS-221 Boise, ID 83707 Phone: (208) 323-3003 FAX: (208) 323-2896	Mr. Russell Smith (A) Hewlett Packard Co. 300 Apollo Dr. Chelmsford, MA 01824 Phone: (508) 256-6600 FAX: (508) 256-3394	Mr. Kevin Jones (O) Hewlett Packard Co. Filton Road Stoke Gifford Bristol United Kingdom Phone: 01 44 272 22051 FAX:
Mr. Steve Krupa (O) Hewlett Packard Co. Filton Rd., Stoke Gifford Bristol BS12 6QZ England Phone: 44 272 228237 FAX: 44 272 236091	Mr. Ed Lock (O) Hewlett Packard Co. 530/84 5301 Stevens Creek Blvd Santa Clara, CA 95051 Phone: (408) 553-2950 FAX:	Mr. Charles E. Matthews (O) Hewlett Packard Co. Apollo Systems Div. 300 Apollo Dr. Chelmsford, MA 01824 Phone: (508) 256-6600 x2656 FAX:	Mr. Russ Golish (O) Hi-Tech Computer Solutions 2010 Badger Glen Escondido, CA 92029-4036 Phone: (619) 741-0492 FAX: (619) 741-1028
Mr. Oscar Kornblum (P) Hirose Electric U.S.A. 2688 West Hills Ct. Simi Valley, CA 93065-6235 Phone: (805) 522-7958 FAX: (805) 522-3217	Mr. Peter Stevens (A) Hirose Electric U.S.A. 2688 West Hills Ct. Simi Valley, CA 93065-6235 Phone: (805) 522-7958 FAX: (805) 522-3217	Mr. Hank Meyer (O) Hitachi - NSA Nisssei Sangyo America Ltd. 460 East Middlefield Rd. Mountain View, CA 94043 Phone: (415) 969-1100 FAX: (415) 961-7259	Mr. Robert F. Landon (O) Hitachi Cable Manchester 900 Holt Ave. Manchester, NH 03103 Phone: (603) 669-4347 FAX: (603) 669-6629
Mr. Paul Boulay (O) Hitachi Computer Prod Amer 3101 Tasman Ave. Santa Clara, CA 95054 Phone: (408) 986-9770 x205 FAX: (408) 986-1821	Mr. Howard Wang (O) Hitachi Computer Products 3101 Tasman Dr. Santa Clara, CA 94054 Phone: (408) 986-9770 x207 FAX: (408) 986-1821	Mr. Sam Karunanithi (P) Hitachi Micro Systems, Inc. MS:310 2000 Sierra Point Pkwy Brisbane, CA 94005-1819 Phone: (415) 244-7906 FAX: (415) 244-7420	Mr. Danny Yeung (A) Hitachi Micro Systems, Inc. 2000 Sierra Point Pkwy Brisbane, CA 94005-1819 Phone: (415) 244-7903 FAX: (415) 244-7420
Mr. David McFadden (P) Honda Connector % Mhotronics 980 Corporate Woods Parkway Vernon Hill, IL 60061 Phone: (708) 913-9566 FAX: (708) 913-9587	Mr. Hiroshi Minawa (A) Honda Connector % Mhotronics 960 Corporate Woods Parkway Vernon Hill, IL 60061 Phone: (708) 913-9566 FAX: (708) 913-9587	Mr. Tom Kulesza (O) Honda Connector % Mhotronics 960 Corporate Woods Parkway Vernon Hill, IL 60061 Phone: (708) 913-9566 FAX: (708) 913-9587	Mr. Tsuyoshi Takizawa (O) IBM (Japan) 805/D99 IBM San Jose 5600 Cottle Rd. San Jose, CA 95193 Phone: (408) 284-2148 FAX: (408) 284-7871
Mr. George Penokie (P) IBM Corp. Dept. 289 Bldg. 114-2 37st Highway 52 N. Rochester, MN 55901 Phone: (507) 253-5208 FAX: (507) 253-1302	Mr. Paul Anderson (A) IBM Corp. 3605 Highway 52 N. Dept 504/114-2 Rochester, MN 55901 Phone: (507) 253-1341 FAX: (507) 253-7732	Mr. Gerald Marazas (A) IBM Corp. Mail Stop 4334 P.O. Box 1328 Boca Raton, FL 33429 Phone: (407) 982-4423 FAX: (407) 982-0067	Mr. Gary R. Stephens (A) IBM Corp. Dept 60L/060-1 9000 S. Rita Rd. Tucson, AZ 85744 Phone: (602) 799-2246 FAX: (602) 799-6487
Mr. KC Chennappan (O) IBM Corp. 11400 Burnet Rd. Austin, TX 78759 Phone: (512) 838-1798 FAX:	Mr. John Disbrow (O) IBM Corp. MS: P43/61-E 5600 Cottle Rd. San Jose, CA 95193 Phone: (408) 256-9776 FAX:	Mr. Otis Greene (O) IBM Corp. Rt 52 Hopewell Junction, NY 12533 Phone: (914) 892-5597 FAX: (914) 892-5388	Mr. Jim Kopac (O) IBM Corp. 1701 North St. U35/257-4 Endicott, NY 13760 Phone: (607) 757-1241 FAX: (607) 757-1126

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Mr. Gerald Rouse (O) IBM Corp. 11400 Burnet Rd. Austin, TX 78759 Phone: (512) 838-1804 FAX:	Mr. John P. Scheible (O) IBM Corp. Dept G46 Bldg 028-1 5600 Cottle Road San Jose, CA 95193 Phone: (408) 284-7719 FAX: (408) 256-2254	Mr. Tony Salthouse (O) ICL Wenlock Way West Gorton Manchester, UK M12 5DR Phone: 61-223 1301 FAX: 61-223 0482	Mr. Gary Fredrickson (O) ICL North America 9801 Muirlands Irvine, CA 92718 Phone: (714) 458-7282 FAX:
Mr. Anthony Zilka (O) Intel Scientific Computers 15201 NW Greenbrier Pkwy Beaverton, OR 97006 Phone: (503) 629-7789 FAX:	Mr. Richard L. Majefski (O) Intelligent Optics Corp. Suite 101 1217 Digital Drive Richardson, TX 75081 Phone: (214) 231-6797 FAX:	Mr. Kevin R. Pokorney (O) Intellistor, Inc. 2402 Clover Basin Drive Longmont, CO 80503 Phone: (303) 682-6649 FAX: (303) 682-6401	Mr. Tom Taetsch (O) Intellistor, Inc. 2402 Clover Basin Drive Longmont, CO 80503 Phone: (303) 682-6651 FAX: (303) 682-6401
Mr. Karl Wurstner (O) Intergraph Corp. M/S CR1105 1 Madison Industrial Park Huntsville, AL 35807 Phone: (205) 772-6732 FAX:	Mr. David Lawson (P) Interphase Corp. 13800 Senlac Dallas, TX 75234 Phone: (214) 919-9000 FAX: (214) 919-9200	Mr. David Buyze (A) Interphase Corp. 13800 Senlac Dallas, TX 75234 Phone: (214) 919-9000 FAX: (214) 919-9200	Mr. Rick Donihoo (O) Interphase Corp. 2925 Merrell Dallas, TX 75229 Phone: (214) 919-9000 FAX:
Mr. Geoff Barton (P) Iomega Corp. 1821 West 4000 South Roy, UT 84067 Phone: (801) 778-1000 FAX: (801) 778-4667	Mr. Robert D. Allgood (A) Iomega Corp. 1821 West 4000 South Roy, UT 84067 Phone: (801) 778-3709 FAX: (801) 778-4667	Mr. Paul Jackson (A) Iomega Corp. 1821 West 4000 South Roy, UT 84067 Phone: (801) 778-1000 FAX: (801) 778-4667	Mr. Ted Dubbs (O) ITT Cannon 1851 E. Deere Ave. Santa Ana, CA 92705 Phone: (714) 757-8442 FAX: (714) 757-8301
Mr. David H. Shaff (P) JAE 2857 NE 26 Street Ft. Lauderdale, FL 33305 Phone: (305) 563-3484 FAX: (305) 563-3507	Mr. David J. Fox (A) JAE Electronics 142 Technology Dr. Irvine, CA Phone: (714) 753-2600 FAX:	Mr. Daniel Wang (O) Joincom Electronic Corp. 2F No 39 Hsin Tung St. Taipei Taiwan ROC Phone: 886-2-760-4366 FAX:	Mr. Jon Miller (O) JRM Consultants Inc P.O. Box 90310 Santa Barbara, CA 93190-0310 Phone: (805) 564-3119 FAX:
Mr. Ed Gershenson (O) Kendall Square Research Corp 170 Tracer Ln. Waltham, MA 02154 Phone: FAX:	Mr. Erik Walberg (O) Konica Technology Corp. 777 N. Pastoria Ave. Sunnyvale, CA 94086 Phone: (408) 773-9551 FAX: (408) 720-9288	Mr. Dwayne Edling (O) Laser Magnetic Storage Intl 4425 ArrowsWest Drive Colorado Springs, CO 80917 Phone: (719) 593-4322 FAX:	Mr. William Homans (O) LMS-TSD 2621 Van Buren Ave. Norristown, PA 19403 Phone: (215) 666-4764 FAX:
Mr. James Lee (O) Longshine Electronic Co. 6F No. 245, Sec. 3 Roosevelt Rd. Taipei, Taiwan R.O.C. Phone: FAX:	Mr. Don Tolmie (O) Los Alamos Labs C-5 MS-B255 Los Alamos, NM 87545 Phone: (505) 667-5502 FAX: (505) 667-1754	Mr. Robert Bellino (P) Madison Cable Corp. 125 Goddard Memorial Dr. Worcester, MA 01603 Phone: (508) 752-7320 FAX: (508) 752-4230	Mr. Chuck Grant (A) Madison Cable Corp. 125 Goddard Memorial Drive Worcester, MA 01603 Phone: (508) 752-7320 FAX: (508) 752-4230
Mr. Robert E. Smiley (O) MAI Basic Four 14101 Myford MD312 Tustin, CA 92680 Phone: (714) 730-2509 FAX:	Mr. Bach Joern (O) Mannesmann Kienzle GmbH Postfach 1640 D7730 Vs-Villingen FRG Phone: 7721-86-7008 FAX:	Mr. William Hahn (O) Martin Marietta PO Box 590385, T-14, MP 26 Orlando, FL 32859 Phone: (407) 826-7917 FAX: (407) 826-7916	Ms. Donna Pope (P) Maxoptix Corp. 2520 Junction Ave. San Jose, CA 95134 Phone: (408) 954-9700 x315 FAX: (408) 954-9711
Mr. David Thayer (A) Maxoptix Corp. 2520 Junction Ave. San Jose, CA 95134 Phone: (408) 954-9700 FAX: (408) 954-9711	Mr. Lawrence J. Lamers (P) Maxtor Corp. Mail Stop A639 150 River Oaks Pkwy San Jose, CA 95134 Phone: (408) 432-3889 FAX: (408) 432-3833	Mr. Doug Pickford (A) Maxtor Corp. 150 River Oaks Parkway San Jose, CA 95134 Phone: (408) 432-3966 FAX: (408) 434-0268	Mr. Bob Masterson (P) Methodode Electronics, Inc. 3000 S. Jamaica Ct., #280 Aurora, CO 80014 Phone: (303) 695-1333 FAX: (303) 751-5188
Mr. John Cannon (A) Methodode Electronics, Inc. 7444 West Wilson Ave Chicago, IL 60656 Phone: (708) 867-9600 FAX: (708) 867-4130	Mr. Dan Paplowski (O) Methodode Electronics, Inc. 7444 West Wilson Av. Chicago, IL 60656 Phone: (708) 867-9600 FAX:	Mr. Frank Samela (O) Methodode Electronics, Inc. 7444 West Wilson Ave Chicago, IL 60656 Phone: (708) 667-9600 FAX:	Mr. Raymond C. Yule (P) Micropolis Corp. 21211 Nordhoff St. Chatsworth, CA 91311 Phone: (818) 718-7803 FAX: (818) 709 3497
Mr. Ken Erickson (A) Micropolis Corp. 21211 Nordhoff St. Chatsworth, CA 91311 Phone: (818) 718-5113 FAX: (818) 709 3497	Mr. Paul Chang (O) Microwave Logic 20 Cummings Rd. Tyngsboro, MA 01879 Phone: (508) 649-6099 FAX:	Mr. Nick Livote (O) WILTOPE Corp. 1770 Walt Whitman Rd. Melville, NY 11747 Phone: (516) 756-7639 FAX:	Mr. Mike Randall (O) Mitsubishi Electronics Amer 991 Knox St. Torrance, CA 90502 Phone: (213) 515-3993 FAX: (213) 324-6466
Mr. Joe Dambach (P) Molex Inc. 2222 Wellington Court Lisle, IL 60532 Phone: (708) 369-3618 FAX: (708) 969-1352	Mr. Jim McGrath (A) Molex Inc. 2222 Wellington Ct. Lisle, IL 60532 Phone: (708) 969-4550 FAX: (708) 964-2321	Mr. Max Bassler (O) Molex Inc. 2222 Wellington Court Lisle, IL 60532 Phone: (708) 969-4550 FAX: (708) 969-1352	Mr. David Bowen (O) Molex Inc. 2222 Wellington St. Lisle, IL 60532 Phone: (708) 969-4747 FAX:
Mr. John Lopata (O) Molex Inc. 2222 Wellington Ct. Lisle, IL 60532 Phone: (708) 969-4550 FAX: (708) 969-1352	Mr. Marjorie Bacis (O) Montrose Products Company 28 Sword Street Auburn, MA 01501 Phone: (508) 791-3161 FAX: (508) 793-9862	Mr. Richard Wagner (O) Montrose Products Company 28 Sword Street Auburn, MA 01501 Phone: (508) 791-3161 FAX: (508) 793-9862	Mr. Jin H. Hwang (O) Morse Technology, Inc. Unit I 17531 Railroad St. City of Industry, CA 91748 Phone: (818) 854-8681 FAX:

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Mr. Brian Wolf (O) Motorola 6501 Wm. Cannon Drive West Austin, TX 78735-8598 Phone: FAX:	Mr. Paul Rosen (O) Motorola Micro Systems 2900 S. Diablo Way Tempe, AZ 85282 Phone: (602) 438-3150 FAX:	Mr. Bill Kutache (O) Murata Erie N.A. 1900 W. College Ave. State College, PA 16801 Phone: (814) 237-1431 x3980 FAX: (814) 237-2748	Mr. William E. Burr (P) Nat. Inst. of Stnd. & Tech. Bldg. 225, Rm A216 Gaithersburg, MD 20899 Phone: (301) 975-2914 FAX: (301) 975-2128
Ms. Natalie Willman (A) Nat. Inst. of Stnd. & Tech. Bldg 225/Rm A61 Gaithersburg, MD 20899 Phone: (301) 975-4652 FAX: (301) 975-2128	Mr. Robbie Shergill (P) National Semiconductor M/S D3-970 P.O. Box 58090 Santa Clara, CA 95052 Phone: (408) 721-7959 FAX: (408) 721-7956	Mr. Gary Murdock (A) National Semiconductor 642 Pineview Drive San Jose, CA 95117 Phone: (408) 721-7269 FAX:	Mr. Yin So (O) NCL Amer. Computer Products 1221 Innsbruck Dr. Sunnyvale, CA 94089 Phone: FAX:
Mr. John Lohmeyer (P) NCR Corp. 1635 Aeroplaza Dr. Colorado Springs, CO 80916 Phone: (719) 596-5795 x362 FAX: (719) 597-8225	Mr. Harry Mason (O) NCR Corp. 1635 Aeroplaza Col. Springs, CO 80916 Phone: (719) 596-5612 FAX: (719) 597-8225	Mr. Fred F. Meadows (O) NCR Corp. 16550 W. Bernardo Dr. San Diego, CA 92127 Phone: (619) 597-3762 FAX:	Mr. Shinobu Yonemitsu (O) NEC Corp. 1-10 Niishincho Fuchushi Tokyo 183 Japan Phone: 81-423-33-1441 FAX:
Ms. Joan French (O) NEC Systems Laboratory 1414 Massachusetts Ave. Boxborough, MA 01719 Phone: (508) 262-2627 FAX:	Mr. Bruce Anderson (P) NEC Technologies Inc. 1300 Mass Ave. Boxborough, MA 01719 Phone: (508) 685-6053 FAX: (508) 635-6378	Mr. Ernest Lutting (A) NEC Technologies Inc. Dept. 502030 1414 Mass. Ave. Boxborough, MA 01710-2298 Phone: (508) 264-8944 FAX: (508) 264-8673	Mr. Bruce DeBree (P) NEK Cable, Inc. Lock Drive Leominster, MA 01453 Phone: (508) 534-1434 FAX: (508) 537-6761
Mr. David Filpus (O) Northern Telecom, Inc. Department 3322 4001 E Chapel Hill-Nelson Hw RTP, NC 27709 Phone: (919) 992-5000 FAX:	Mr. J.D. Shah (O) Olivetti 20300 Steven Creek Blvd. Cupertino, CA 95014 Phone: (408) 996-3867 FAX: (408) 996-3053	Mr. Dennis P. Trupski (O) Olivetti 20300 Steven Creek Blvd. Cupertino, CA 95014 Phone: (408) 365-3254 FAX: (408) 996-3053	Mr. Thomas Steury (O) Pacific Electro Data Inc. 14 Hughes, Suite B205 Irvine, CA 92718 Phone: (714) 770-3244 FAX:
Mr. Charles Yang (A) Panasonic Industrial Co. 1600 McCandless Dr. Milpitas, CA 95035 Phone: (408) 262-2200 FAX:	Mr. Stephen F. Heil (P) Panasonic Technologies, Inc One Panasonic Way M/S 3C-1 Secaucus, NJ 07094 Phone: (201) 348-7064 FAX: (201) 348-7742	Mr. Dominic Turley (O) Panduit Corp. 412 Rockwell Burr Ridge, IL 60521 Phone: (708) 887-1000 FAX:	Mr. William H. Bunker (O) Pentax Technologies 100 Technology Dr. Broomfield, CO 80021 Phone: (303) 460-1600 FAX: (303) 460-1628
Mr. Mark Koch (O) Pentax Technologies 100 Technology Dr.wy Broomfield, CO 80021 Phone: (303) 460-1607 FAX: (303) 460-1628	Mr. Brian Wilson (O) PrairieTek Corp. 1830 Left Hand Circle Longmont, CO 80501 Phone: (303) 772-4011 FAX:	Mr. Steve Kohlenberger (O) Presoft Architects P.O. Box 2237 Orange, CA 92669 Phone: (714) 538-6002 FAX: (714) 538-0298	Mr. John Emerson (O) Prime Computer MS 10-31 500 Old Conn. Path Framingham, MA 01701 Phone: (508) 879-2960 x4206 FAX: (508) 879-9098
Mr. James McGrath (P) Quantum Corp. 500 McCarthy Blvd. Milpitas, CA 95035 Phone: (408) 894-4504 FAX: (408) 894-3208	Mr. Richard Blackborow (A) Quantum Corp. 500 McCarthy Blvd. Milpitas, CA 95035 Phone: (408) 894-5477 FAX: (408) 894-3207	Mr. Glen Nance (A) Quantum Corp. 1804 McCarthy Blvd. Milpitas, CA 95035 Phone: FAX:	Mr. Brian N. Davis (O) Quantum Corp. 500 McCarthy Blvd. Milpitas, CA 95035 Phone: (408) 894-5017 FAX: (408) 894-3260
Mr. Steve Kennedy (O) Quantum Corp. Loc 21723 500 McCarthy Blvd. Milpitas, CA 95035 Phone: (408) 894-5778 FAX: (408) 894-3255	Mr. Pete Yeatman (O) Radstone Technology Corp. 20 Craig Rd. Montvale, NJ 07645 Phone: (201) 391-2700 FAX:	Mr. Bill Babbitt (O) Rancho Technology, Inc. Suite 109 8632 Archibald Ave. Rancho Cucamonga, CA 91730 Phone: (714) 987-3966 FAX:	Mr. Claus Ek (O) RC Computers AS 1 Lauptrupbjerg DK-2750 Ballerup Denmark Phone: 011 45 42658000 FAX:
Dr. Tetsuro Motoyoma (P) Ricoh Corporation 2071 Concourse Drive San Jose, CA 95131 Phone: (408) 954-5445 FAX: (408) 432-8398	Mr. Satwinder S. Mangat (A) Ricoh Corporation 2071 Concourse Dr. San Jose, CA 95131 Phone: (408) 954-5484 FAX: (408) 432-8398	Mr. Gregorio Rodriguez (A) Ricoh Corporation 2071 Concourse Drive San Jose, CA 95131 Phone: (408) 954-5450 FAX: (408) 432-8398	Mr. Ben Mattox (O) Robinson Nugent 800 E. 8th St. New Albany, IN 47136 Phone: (812) 945-0211 FAX: (812) 945-0804
Mr. John Contreras (O) Sankyo Seiki 2649 Campus Dr. Irvine, CA 92715 Phone: (714) 724-1505 FAX: (714) 724-1501	Mr. Fumaiki Nagao (O) Sanyo VLSI Engineering Ltd 180 Ohmori Anpachi-Chou Anpachi-Gun Gifu-Ken 503-01 Japan Phone: 58464-4586 FAX:	Mr. D. Michael Robinson (P) Seagate Technology 920 Disc Drive Scotts Valley, CA 95066 Phone: (408) 439-2414 FAX: (408) 438-4190	Mr. Gerald Houlder (A) Seagate Technology MPS043 8001 E. Bloomington Freeway Bloomington, MN 55420-1094 Phone: (612) 844-5869 FAX: (612) 844-5708
Mr. Hale Landis (A) Seagate Technology 920 Disc Drive Scotts Valley, CA 95067 Phone: (408) 439-2443 FAX: (408) 438-4190	Mr. Gene Milligan (A) Seagate Technology MS OKM 251 P. O. Box 12313 Oklahoma City, OK 73157 Phone: (405) 324-3070 FAX: (405) 324-3794	Mr. Brian Johnson (O) Seagate Technology 2655 Park Center Dr. Simi Valley, CA 93065 Phone: (805) 582-3808 FAX: (805) 583-8709	Mr. Shiv Shivaji (O) Seagate Technology 7801 Computer Ave So Bloomington, MN 55435 Phone: (612) 844-8257 FAX: (612) 844-7017
Mr. William K. Smythe (L) Secretary, IT8 Committee NPEC Inc. 1899 Preston White Drive Reston, VA 22091 Phone: (703) 264-7200 FAX: (703) 620-0994	Mr. Yoshihiro Nakamura (O) Seiko Epson Corp. ODD Design Dept. 1-10 2 Chome Tsukama-Cho Okaya-Shi Nagano-Ken 394 Japan Phone: 44-777-1111 FAX:	Mr. Rick Coulson (O) Sequent Computer Systems 15450 SW Koll Parkway Beaverton, OR 97006 Phone: (503) 526-5960 FAX:	Mr. Forrest Crowell (P) SGS-Thomson Microelectronics 200 E. Sandpark #120 Santa Ana, CA 92707 Phone: (714) 957-6018 FAX: (714) 957-3281

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Mr. Neil Mitchell (A) SGS-Thomson Microelectronics 2055 Gateway Place #300 San Jose, CA 95110 Phone: (408) 459-9122 FAX: (408) 452-1549	Mr. Dean Konell (O) Siemens Info. Systems, Inc. 1092 Finrod Ct. Westlake Village, CA 91361 Phone: (805) 373-3900 FAX: (805) 373-7501	Mr. Erhard Weiss (O) Siemens Nixdorf Dept: SNI WAT241 Werher-Von-Siemens-Str 6 8900 Augsburg 11 Germany Phone: 49 821 559 2581 FAX: 49 821 559 2110	Mr. Stephen G. Finch (P) Silicon Systems, Inc. 14351 Myford Road Tustin, CA 92680-7022 Phone: (714) 573-6855 FAX: (714) 573-6914
Mr. Daniel E. Moczarny (A) Silicon Systems, Inc. 14351 Myford Rd. Tustin, CA 92680-7022 Phone: (714) 573-6750 FAX: (714) 573-6914	Mr. Mike Holt (O) Silicon Systems, Inc. 14351 Myford Road Tustin, CA 92692 Phone: (714) 573-6871 FAX: (714) 573-6916	Mr. Michael Scott (O) Silicon Systems, Inc. 14351 Myford Road Tustin, CA 90740 Phone: (714) 573-6613 FAX: (714) 573-6916	Mr. Paul E. Orland (O) Silbourne Computer, Inc. 1900 Pike Rd. Longmont, CO 80501 Phone: (303) 678-4351 FAX: (303) 772-3646
Mr. Robert L. Simpson (P) Sony Corp. of America 655 River Oaks Parkway San Jose, CA 95134 Phone: (408) 944-4348 FAX: (408) 954-8339	Mr. Mike Yokoyama (A) Sony Corp. of America 655 River Oaks Parkway San Jose, CA 95134 Phone: (408) 944-4344 FAX: (408) 943-0740	Mr. Robert Monsour (O) Stac Electronics 126 Del Mar Blvd. Pasadena, CA 91105 Phone: FAX:	Mr. Bob Gross (O) Standard Micro Systems 35 Marcus Blvd. Hauppauge, NY 11788 Phone: (516) 273-3100 FAX: (516) 273-5550
Mr. Steve Lindquist (O) Standard Micro Systems 35 Marcus Blvd. Hauppauge, NY 11788 Phone: (516) 273-3100 FAX: (516) 273-5550	Mr. Richard Wahler (O) Standard Micro Systems 35 Marcus Blvd. Hauppauge, NY 11788 Phone: (516) 273-3100 FAX: (516) 273-5550	Mr. Chris Romine (O) Storage Concepts, Inc. 1622 Deere Ave. Irvine, CA 92714 Phone: (714) 852-8511 FAX:	Mr. Dennis Appleyard (P) Storage Technology Corp. Mail Drop 4271 2270 South 88th St. Louisville, CO 80028-4271 Phone: (303) 673-6685 FAX:
Mr. Roger Cummings (A) Storage Technology Corp. 2270 South 88th St. Louisville, CO 80028-0211 Phone: (303) 673-6357 FAX: (303) 673-2568	Mr. Gregory Green (O) Stratus Computer MS M325FT 55 Fairbanks Blvd. Marlboro, MA 01752 Phone: (508) 490-5473 FAX: (508) 480-8219	Mr. Robert N. Snively (P) Sun Microsystems, Inc. Mail Stop 15-46 2550 Garcia Ave. Mountain View, CA 94043-1100 Phone: (415) 336-5332 FAX: (415) 968-4673	Mr. Vit Novak (A) Sun Microsystems, Inc. Mail Stop 15-46 2550 Garcia Ave. Mountain View, CA 94043-1100 Phone: (415) 336-2455 FAX: (415) 968-4873
Mr. Carl Humphreys (O) Sun Microsystems, Inc. Mail Stop F658 2 Federal Street Billerica, MA 01821 Phone: FAX:	Mr. Patrick Manley (O) SyQuest Technology 47071 Bayside Parkway Fremont, CA 94538 Phone: (415) 226-4135 FAX: (415) 226-4100	Mr. Albert C. Amet (O) Tallgrass Technologies 11100 W. 82nd St. Overland Park, KS 66214 Phone: FAX:	Mr. Halvard Eriksen (O) Tandberg Data 2649 Townsgate Rd Suite 600 Westlake Village, CA 91361 Phone: (805) 495-8384 FAX:
Mr. Erik Soljhjell (O) Tandberg Data A/S P.O. Box 9 Korsvoll N-0808 Oslo 8 Norway Phone: FAX:	Mr. Pete Tobias (O) Tandem Loc 100-03 10555 Ridgeview Ct. Cupertino, CA 95014-0789 Phone: (408) 285-9913 FAX: (408) 285-9924	Mr. Steve Kakimoto (O) Teac 7733 Telegraph Rd. Montebello, CA 90640 Phone: FAX:	Mr. Joe Molina (O) Technology Forums Ltd. Suite 210 15612 Highway 7 Minnetonka, MN 55345 Phone: (612) 784-2379 FAX:
Mr. Kenneth Plourde (O) Tempflex Cable Inc. 11 Depot Street S. Grafton, MA 01560 Phone: (508) 839-5987 FAX: (508) 839-4128	Mr. Ricardo Dominguez (P) Texas Instruments 12501 Research Blvd. MS 2091 Austin, Texas 78759 Phone: (512) 250-5204 FAX: (512) 250-7479	Mr. Richard Mourn (O) Texas Instruments 8390 LBJ Freeway P.O. Box 655303 M/S 8206 Dallas, TX 75265 Phone: (214) 997-3426 FAX: (214) 997-3165	Mr. Edward R. Schurig (O) Texas Instruments 8390 LBJ Freeway P.O. Box 655303 M/S 8209 Dallas, TX 75265 Phone: (214) 997-3384 FAX:
Mr. Dean Wallace (O) Texas Instruments 1336 Sheila Dr. Plano, TX 75023 Phone: (214) 997-5973 FAX: (214) 997-5972	Mr. Alan Wetzel (O) Texas Instruments P.O. Box 655303, MS 8206 Dallas, TX 75265 Phone: (214) 997-2370 FAX: (214) 997-3165	Mr. Leonard Dore (O) The JPM Company Route 15 N Lewisburg, PA 17837 Phone: (717) 524-8200 FAX: (717) 524-8181	Mr. Robert Langton (O) The JPM Company Route 15 Lewisburg, PA 17837 Phone: (717) 524-8200 FAX: (717) 524-8181
Mr. Harvey Waltersdorf (P) Thomas & Betts 200 Executive Ctr. Dr. P.O. Box 24901 Greenville, SC 29616 Phone: (803) 676-2905 FAX: (803) 676-2994	Mr. Scott Roland (A) Thomas & Betts 200 Executive Ctr. Dr. P.O. Box 24901 Greenville, SC 29616 Phone: (803) 676-2900 FAX: (803) 676-2994	Mr. Alan Ebright (P) Toshiba America, Inc. 2851 Junction Ave. San Jose, CA 95134 Phone: (408) 428-4831 FAX: (408) 428-4812	Mr. Tetsuo Shimizu (O) Toyo Corp. 1-2 Hongokicho 1-Chome Nihonbashi Chuo-Ku Tokyo 103 Japan Phone: 03-279-0771 FAX:
Mr. Chuck Duquette (P) U.S. Design 9075 Guilford Road Columbia, MD 21046 Phone: (410) 381-3000 FAX: (410) 381-3235	Mr. Dennis Mellinger (A) U.S. Design 9075 Guilford Road Columbia, MD 21046 Phone: (410) 381-3000 FAX: (410) 381-3235	Mr. Peter Dougherty (P) UNISYS 25725 Jeronimo Rd. Mission Viejo, CA 92691 Phone: (714) 380-6270 FAX: (714) 380-6099	Mr. Arlan P. Stone (A) UNISYS MS 165 25725 Jeronimo Rd. Mission Viejo, CA 92691 Phone: (714) 380-5982 FAX: (714) 380-6099
Mr. Ian Wigmore (O) Vermont Research Ltd Cleeve Rd. Leatherhead Surrey DT22 7NB England Phone: FAX:	Mr. Richard Muehling (O) Viking Electronics, Inc. 21001 Nordhoff St. Chatsworth, CA 91311 Phone: (818) 341-4330 FAX:	Mr. John Frissell (O) Wang Laboratories Mail Stop 1429 1 Industrial Ave. Lowell, MA 01852 Phone: (602) 437-9035 FAX:	Mr. David Griffith (O) Wang Laboratories Mail Stop 014-490 1 Industrial Ave. Lowell, MA 01852 Phone: (508) 967-2265 FAX:
Mr. Andy Millerd (O) WangDAT 3001 Redhill Ave. 4-222 Costa Mesa, CA 92626 Phone: FAX:	Mr. Kenji Eigner (O) Wangtek 41 Moreland Rd. Simi Valley, CA 93065 Phone: (805) 583-5255 FAX:	Mr. Sam Washburn (O) Wangtek 41 Moreland Rd. Simi Valley, CA 93065 Phone: (805) 582-3538 FAX: (805) 522-1576	Mr. Jeff Stai (P) Western Digital 8105 Irvine Ctr. Dr. Irvine, CA 92718 Phone: (714) 932-7644 FAX: (714) 932-7796

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X3T9.2/92-200R0

Mr. Tak Asami (A)
Western Digital
8105 Irvine Ctr. Dr.
Irvine, CA 92718
Phone: (714) 932-7621
FAX: (714) 932-7796

Mr. Shishir Shah (A)
Western Digital
8105 Irvine Ctr. Dr.
Irvine, CA 92718
Phone: (714) 932-7235
FAX: (714) 932-7314

Mr. Tom Hanan (O)
Western Digital
8105 Irvine Ctr. Dr.
Irvine, CA 92718
Phone: (714) 932-7472
FAX: (714) 932-7314

Mr. Erik Jessen (O)
Western Digital
8105 Irvine Ctr. Dr.
Irvine, CA 92718
Phone: (714) 932-6612
FAX: (714) 932-6700

Mr. Bud Sherman (O)
Western Digital
8105 Irvine Ctr. Dr.
Irvine, CA 92718
Phone: (714) 932-7214
FAX: (714) 932-7314

Mr. Doug Piper (P)
Woven Electronics
PO Box 189
Mauldin, SC 29662
Phone: (803) 967-1751
FAX: (803) 963-1761

Mr. E.J. Mondor (A)
Woven Electronics
PO Box 189
Mauldin, SC 29662
Phone: (803) 967-1739
FAX: (803) 963-1761

Mr. Ken Hibbard (O)
Xylogics, Inc.
53 Third Ave.
Burlington, MA 01803
Phone:
FAX:

Mr. Steve Drake (P)
Yamaichi Electronics, Inc.
Suite B
1420 Koll Circle
San Jose, CA 95122
Phone: (408) 452-0797
FAX: (408) 452-0799

Mr. Masafumi Aoki (A)
Yamaichi Electronics, Inc.
1420 Koll Circle
Suite B
San Jose, CA 95112
Phone: (408) 452-0797
FAX: (408) 452-0799

Mr. Bob Million (O)
Yamaichi Electronics, Inc.
1420 Koll Circle
Suite B
San Jose, CA 95112
Phone: (408) 452-0797
FAX: (408) 452-0799

Mr. Zaydoon A. Jawadi (O)
Zadian Software, Inc.
Suite 214
1210 S. Bascom Ave.
San Jose, CA 95128
Phone: (408) 293-0800
FAX: (408) 293-0850

Mr. Greg Leonhardt (A)
Zenith Data Systems
Hilltop Road
St. Joseph, MI 49085
Phone: (616) 982-5307
FAX: (616) 982-5399

Mr. Saeid Zangenehpour (P)
Zenith Data Systems, ATC
2350 Mission College Blvd.
#100
Santa Clara, CA 95054
Phone: (408) 982-5870
FAX: (408) 982-8288

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Oct 21, 1992 - X3T9.2 Document Register - Enclosure (3)

- X3T9.2/92-1 Date: Author: J. Lohmeyer [1/21/92]
Desc: X3T9.2 1991 Annual Report
Res:
- X3T9.2/92-2 Date: 12/10/91 Author: SC 25/WG 4 Secretariat [1/21/92]
Desc: Standardization Activities in ISO/IEC JTC 1/SC 25/WG 4
Res:
- X3T9.2/92-3 Date: 12/10/91 Author: SC 25/WG 4 Secretariat [1/21/92]
Desc: Draft Report of 2nd Mtg of WG 4 held in Bremen, Germany 9/30-10/2 1991
Res:
- X3T9.2/92-4 Date: 1/10/92 Author: B. Spence [1/21/92]
Desc: Cable Impedance Revisited
Res:
- X3T9.2/92-5 Date: 1/15/92 Author: Lamers/Lohmeyer [1/21/92]
Desc: Houston Working Group Minutes
Res:
- X3T9.2/92-6 Rev 1 Date: 7/16/92 Author: K. Jones [9/15/92]
Desc: Enhancement of Sequential Access Command Set for Medium Changers
Res: Parts accepted in principal for SCSI-3
- X3T9.2/92-7 Rev 1 Date: 2/13/92 Author: V. Novak [3/24/92]
Desc: Proposed SCSI Identifier Symbols
Res: Accepted for SCSI-3 SPI at 2/92 plenary meeting
- X3T9.2/92-8 Date: 1/11/92 Author: W. Burr [1/21/92]
Desc: An Introduction to X3T9 and I/O Interface Standards
Res:
- X3T9.2/92-9 Date: 1/7/92 Author: L. Lamers [1/21/92]
Desc: ltr to Mr. Mori responding to his questions in 91-170
Res:
- X3T9.2/92-10 Date: 1/13/92 Author: T. Hanan [1/21/92]
Desc: PCMCIA IDE Host Interface Implementation Guide
Res:
- X3T9.2/92-11 Date: 1/13/92 Author: C. Runowicz [1/21/92]
Desc: DMA data transfer method as outlined in AT Attachment
Res:
- X3T9.2/92-12 Date: 1/14/92 Author: J. Williams [1/21/92]
Desc: CA Clearing Commands
Res:
- X3T9.2/92-13 Date: 1/14/92 Author: J. Williams [1/21/92]
Desc: Conflicting Statement on CA and Queue Suspension
Res:
- X3T9.2/92-14 Date: 1/10/92 Author: E. Gardner [1/21/92]
Desc: Previewing Linked Commands in SCSI-3
Res:
- X3T9.2/92-15 Date: 1/10/92 Author: E. Gardner [1/21/92]
Desc: The Meaning of Linked Commands in SCSI-3
Res:
- X3T9.2/92-16 Date: 1/13/92 Author: C. Mosley [1/21/92]
Desc: SCSI-3 Connector Presentation
Res:
- X3T9.2/92-17 Date: 1/14/92 Author: F. Samela [1/21/92]
Desc: Signal Line Increased Current Kicker
Res:
- X3T9.2/92-18 Date: 1/16/92 Author: L. Lamers [1/21/92]
Desc: DADI Working Group Minutes 1/13/92
Res:
- X3T9.2/92-19 Rev 1 Date: 1/24/92 Author: Penokie/Lamers [1/21/92]
Desc: SCSI-3 Queuing Working Group Minutes 1/13/92
Res:
- X3T9.2/92-20 Date: 1/14/92 Author: B. Spence [1/21/92]
Desc: SPI Working Group Minutes for January 1992
Res:
- X3T9.2/92-21 Date: Author: J. Lohmeyer [1/21/92]
Desc: SPP Working Group Minutes 1/15/92
Res:
- X3T9.2/92-22 Date: 1/17/92 Author: Penokie/ Mosley [1/21/92]
Desc: SPI Connector Contact Working Group Minutes 1/15/92
Res:
- X3T9.2/92-23 Date: 1/1/92 Author: M. Mitoma [1/21/92]
Desc: Serial Storage Architecture
Res:
- X3T9.2/92-24 Date: 1/15/92 Author: I. Judd [1/21/92]
Desc: A Serial Link for Storage Subsystems (presentation)
Res:
- X3T9.2/92-25 Date: 1/15/92 Author: I. Judd [1/21/92]
Desc: A Serial Link for Storage Subsystems (paper)
Res:
- X3T9.2/92-26 Date: 12/12/91 Author: C. Butterworth [1/21/92]
Desc: Serial Storage Architecture SSA-0 (Transport Layer) Ver 1.0
Res:

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X3T9.2/92-200R0

X3T9.2/92-27 Date: 12/12/91 Author: C. Butterworth [1/21/92]
Desc: Serial Storage Architecture SSA-1 (Disk Order Level) Ver 1.0
Res:

X3T9.2/92-28 Date: 1/14/92 Author: M. Jordan [1/21/92]
Desc: Fast Single Ended SCSI Terminator Concept -- Active Negation Emulator
Res:

X3T9.2/92-29 Date: 1/18/92 Author: Dal Allan [1/21/92]
Desc: Translation of IPI-3 Command Queuing to SCSI Language
Res:

X3T9.2/92-30 Date: 1/31/92 Author: L. Lamers [3/24/92]
Desc: SPP Architectural Meeting January 27-28, 1992
Res: n.a.

X3T9.2/92-31 Date: 2/5/92 Author: Smyers, Neer, & Newsom [3/24/92]
Desc: Alternate P-Cable Connector for SCSI-3
Res: On General WG Agenda 3/16/92 17:00

X3T9.2/92-32 Date: 2/11/92 Author: K. Chan [3/24/92]
Desc: Fast SCSI Timing Problems and Solutions
Res: Assigned to SPI WG

X3T9.2/92-33 Date: 2/7/92 Author: S. Smyers [3/24/92]
Desc: Proposed Requirements for SCSI-3 devices which use PI394 Physical I/F
Res: To be included in Annex of SPP document

X3T9.2/92-34 Date: 2/14/92 Author: J. P. McGrath [3/23/92]
Desc: DMA Meeting at HP-PCG on 1/24/92
Res: On ATA Extensions agenda for 3/16/92 14:00

X3T9.2/92-35 Rev 2 Date: 4/28/92 Author: G. Penokie [5/14/92]
Desc: SCSI-3 Alt 1 Connector Requirements
Res: Accepted for SCSI-3 Parallel Interface

X3T9.2/92-36 Date: 2/18/92 Author: B. Spence [3/24/92]
Desc: Termination of Reserved Lines
Res:

X3T9.2/92-37 Date: 2/18/92 Author: B. Ham [3/24/92]
Desc: Specifications for SPI Transceivers
Res:

X3T9.2/92-38 Date: 2/13/92 Author: F. Oprescu [3/24/92]
Desc: Proposal for Glitch Immunity Specification
Res:

X3T9.2/92-39 Date: 2/12/92 Author: A. Crick [3/24/92]
Desc: Microsoft concerns with the CAM XPT/SIM document
Res:

X3T9.2/92-40 Date: 2/21/92 Author: Lamers/Lohmeyer [3/24/92]
Desc: X3T9.2 Meeting #98 Minutes -- February 17, 1991
Res: n.a.

X3T9.2/92-41 Date: 2/22/92 Author: Lamers/Penokie [3/24/92]
Desc: Austin Queuing Working Group Minutes
Res: n.a.

X3T9.2/92-42 Date: 12/30/91 Author: R. Gibson [3/24/92]
Desc: International Participation Fee
Res:

X3T9.2/92-43 Date: 2/18/92 Author: Spence/Lamers [3/24/92]
Desc: SPI Working Group Minutes for February 1992
Res: n.a.

X3T9.2/92-44 Date: Author: J. Tecco [3/24/92]
Desc: May 1992 Working Group Announcement
Res:

X3T9.2/92-45 Rev 1 Date: 4/27/92 Author: Charles Monia [5/14/92]
Desc: Introduction to Packetized SCSI
Res:

X3T9.2/92-46 Rev 1 Date: 3/20/92 Author: G. Houlder [3/24/92]
Desc: Request for new Additional Sense Codes
Res: On Apr '92 WG agenda

X3T9.2/92-47 Date: 3/12/92 Author: E. Gardner [3/24/92]
Desc: Request for Sequential-Access Density Codes
Res:

X3T9.2/92-48 Date: 3/12/92 Author: J. McGrath [3/24/92]
Desc: Molex Pin Chamfer Proposal
Res:

X3T9.2/92-49 Date: 3/16/92 Author: C. Mosley [3/24/92]
Desc: SCSI-3 Connector
Res:

X3T9.2/92-50 Date: 3/17/92 Author: B. Spence [3/24/92]
Desc: 8-bit Drives Within a 16-bit SCSI System
Res:

X3T9.2/92-51 Date: 3/16/92 Author: T. Newsom [3/24/92]
Desc: Presentation on Alternative Ribbon Connector for SCSI-3
Res:

X3T9.2/92-52 Date: 9/4/90 Author: T. Newsom [3/24/92]
Desc: IBM Procurement Specification on Mini Ribbon D Shell Connector
Res:

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X3T9.2/92-53 Date: 2/18/91 Author: T. Newsom [3/24/92]
 Desc: Burndy Specification on Microshield (tm) Receptacle
 Res:

X3T9.2/92-54 Date: Author: T. Newsom [3/24/92]
 Desc: AMP Specification on Receptacle Assembly, 60 Position, Champ .050
 Res:

X3T9.2/92-55 Date: 1/31/90 Author: T. Newsom [3/24/92]
 Desc: Molex Specification on Mini Ribbon Shell Shielded Connector
 Res:

X3T9.2/92-56 Date: 3/12/92 Author: A. Wilhelm [3/24/92]
 Desc: Proposal to modify Device Type 0 to support Media Interchange
 Res:

X3T9.2/92-57 Date: 3/16/92 Author: T. Debiec [3/24/92]
 Desc: Proposal for SCSI Cable Performance Specification
 Res:

X3T9.2/92-58 Date: 3/13/92 Author: C. Ghosh [3/24/92]
 Desc: Statement re US patent of Glitch remover circuit
 Res:

X3T9.2/92-59 Date: 2/17/92 Author: B. Ham [3/24/92]
 Desc: Electrical Impacts of SCSI Hot Plugging
 Res:

X3T9.2/92-60 Date: 3/18/92 Author: J. Lohmeyer [3/24/92]
 Desc: ltr re PCMCIA/ATA Proposal, dated February 24, 1992
 Res:

X3T9.2/92-61 Date: 3/16/92 Author: T. Asami [3/24/92]
 Desc: SCSI ACK Net with Wired-OR Driver
 Res: Presented at 3/92 SPI WG Meeting

X3T9.2/92-62 Date: 3/17/92 Author: K. Chan [3/24/92]
 Desc: Differential Fast Synchronous Timing
 Res: Presented at 3/92 SPI WG Meeting

X3T9.2/92-63 Rev 1 Date: 5/15/92 Author: J. Blagaila [7/15/92]
 Desc: Integral Peripherals 68 Pin IDE Pinout
 Res:

X3T9.2/92-64 Date: 12/18/91 Author: Hanan & Abrahamsson [3/24/92]
 Desc: PCMCIA IDE Drive Auto Select Proposal
 Res:

X3T9.2/92-65 Rev 1 Date: 5/15/92 Author: S. Shah [7/15/92]
 Desc: Support for Greater than 528MB ATA Drive
 Res:

X3T9.2/92-66 Date: 1/28/92 Author: [3/24/92]
 Desc: IBM 9333 SCSI Mapping
 Res:

X3T9.2/92-67 Date: 1/29/92 Author: J. Best [3/24/92]
 Desc: SSA-PH Appendix Daisy Chain
 Res:

X3T9.2/92-68 Date: 3/16/92 Author: B. Herron [3/24/92]
 Desc: 3M High-Density .050" "D" Ribbon Style Interconnect System
 Res:

X3T9.2/92-69 Date: 3/13/92 Author: B. Bellino [3/24/92]
 Desc: Madison Cable Impedance Variations
 Res:

X3T9.2/92-70 Date: 3/16/92 Author: L. Lamers [3/24/92]
 Desc: ATA Extensions Working Group Minutes 3/16/92
 Res:

X3T9.2/92-71 Date: 3/18/92 Author: Lamers/Lohmeyer [3/24/92]
 Desc: X3T9.2 General Working Group Minutes 3/16-18/92
 Res:

X3T9.2/92-72 Date: 3/17/92 Author: Lamers/Spence [3/24/92]
 Desc: SPI Working Group Minutes for March 1992
 Res:

X3T9.2/92-73 Date: 2/27/92 Author: D. Shoemaker [3/24/92]
 Desc: ltr to Don Laughry re IEE MSC/X3T9 Memory Attach Strategy
 Res:

X3T9.2/92-74 Rev 1 Date: 3/18/92 Author: S. Shah []
 Desc: Public Review Comment on AT Attachment (BSR X3.221)
 Res:

X3T9.2/92-75 Date: 3/18/92 Author: J. Gallant [3/24/92]
 Desc: Creating a TIB for SCSI-2 Tag Queuing working model.
 Res:

X3T9.2/92-76 Date: 3/16/92 Author: G. Penokie [3/24/92]
 Desc: Connector Contact Working Group Meeting Minutes 3/16/92
 Res:

X3T9.2/92-77 Date: 4/13/92 Author: John Lohmeyer [5/14/92]
 Desc: Response to M. Freeman of MSC on his 4/6/92 letter
 Res:

X3T9.2/92-78 Date: 4/6/92 Author: M. Freeman [5/14/92]
 Desc: Letter to John Lohmeyer on MAT/MSC P1265
 Res:

X3T9.2/92-79 Rev 3 Date: 8/15/92 Author: Charles Monia [9/15/92]
 Desc: working draft of the SCSI-3 Architecture Model (SAM)
 Res:

X3T9.2/92-80 Date: 4/27/92 Author: F. Crowell [5/14/92]
 Desc: DS-Links Technical Information
 Res:

X3T9.2/92-81 Date: 4/6/92 Author: Lynn Barra [5/14/92]
 Desc: Transmittal of Public Review Comment #1 ATA
 Res:

X3T9.2/92-82 Date: 4/7/92 Author: Lynn Barra [5/14/92]
 Desc: Approval of Project Proposal for AT Attachments Extensions
 Res:

X3T9.2/92-83 Rev 2 Date: 5/4/92 Author: S. Washburn [7/15/92]
 Desc: Request for Sequential Access Density Codes
 Res: Accepted for SCSI-3

X3T9.2/92-84 Rev 1 Date: 4/24/92 Author: L. Lamers [5/14/92]
 Desc: Preparing Documents for Committee Mailings
 Res:

X3T9.2/92-85 Rev 4 Date: 9/15/92 Author: G. Penokie [11/15/92]
 Desc: Change Inquiry Mode Page
 Res:

X3T9.2/92-86 Date: 4/27/92 Author: D.W. Spence [5/14/92]
 Desc: SCSI Implementation in a 3.3 volt Environment
 Res:

X3T9.2/92-87 Date: 4/27/92 Author: D.W. Spence [5/14/92]
 Desc: Key Changes Proposed for the SPI Standard
 Res:

X3T9.2/92-88 Date: 4/23/92 Author: J. Gallant [5/14/92]
 Desc: Two Changes for the CAM document
 Res: Accepted for CAM rev 3.0

X3T9.2/92-89 Date: 4/13/92 Author: D. Rundle [5/14/92]
 Desc: Status of IEC 48B Standards Efforts
 Res:

X3T9.2/92-90 Date: 4/27/92 Author: F. Crowell [5/14/92]
 Desc: Presentation Foils of Serial DS-Link Technology
 Res:

X3T9.2/92-91 Date: 4/8/92 Author: J. McGrath [5/14/92]
 Desc: Tolerance Analysis of P-cable Connection
 Res:

X3T9.2/92-92 Date: 4/28/92 Author: J. Lohmeyer [5/14/92]
 Desc: Letter to M. Freeman on Grass Roots
 Res:

X3T9.2/92-93 Rev 2 Date: 6/22/92 Author: B. Ham [7/15/92]
 Desc: SCSI-3 Connector Framework
 Res:

X3T9.2/92-94 Date: 3/13/92 Author: I. Dal Allan [5/14/92]
 Desc: Information Package on 1988 Connector Decision
 Res:

X3T9.2/92-95 Rev 1 Date: 5/14/92 Author: Lamers/Lohmeyer [5/14/92]
 Desc: Minutes of X3T9.2 Plenary Meeting #99
 Res:

X3T9.2/92-96 Date: 4/27/92 Author: T. Asami [5/14/92]
 Desc: Pin Capacitance of a SCSI Controller LSI
 Res:

X3T9.2/92-97 Date: 4/27/92 Author: B. Ham [5/14/92]
 Desc: Requirement for Glitch Free Power Up/Down
 Res:

X3T9.2/92-98 Date: 4/29/92 Author: M. Freeman [5/14/92]
 Desc: IEEE P1285 PAR
 Res:

X3T9.2/92-99 Date: 4/13/92 Author: I. Dal Allan [5/14/92]
 Desc: Connector Agenda Items
 Res:

X3T9.2/92-100 Date: 5/4/92 Author: Spence/Lamers [5/14/92]
 Desc: SPI Working Group Minutes for April 1992
 Res:

X3T9.2/92-101 Date: 5/1/92 Author: I. Dal Allan [5/14/92]
 Desc: Project Proposal for SCSI-3 Generic Packetized Protocol
 Res:

X3T9.2/92-102 Date: 5/1/92 Author: I. Dal Allan [5/14/92]
 Desc: Project Proposal for SCSI-3 Serial Bus Protocol
 Res:

X3T9.2/92-103 Date: 5/1/92 Author: I. Dal Allan [5/14/92]
 Desc: Project Proposal for SCSI-3 Fiber Channel Protocol
 Res:

X3T9.2/92-104 Date: 5/1/92 Author: I. Dal Allan [5/14/92]
 Desc: Project Proposal for SCSI-3 Architecture Model
 Res:

Minutes of X3T9.2 Plenary Meeting #102 in Ft. Lauderdale, FL

X3T9.2/92-200R0

X3T9.2/92-105 Rev 1 Date: 8/29/92 Author: I. Dal Allan [9/15/92]
Desc: Project Proposal for SCSI-3 Core Commands
Res:

X3T9.2/92-106 Rev 1 Date: 8/29/92 Author: I. Dal Allan [9/15/92]
Desc: Project Proposal for SCSI-3 Block Commands
Res:

X3T9.2/92-107 Rev 1 Date: 8/29/92 Author: I. Dal Allan [9/15/92]
Desc: Project Proposal for SCSI-3 Stream Commands
Res:

X3T9.2/92-108 Rev 1 Date: 8/29/92 Author: I. Dal Allan [9/15/92]
Desc: Project Proposal for SCSI-3 Graphic Commands
Res:

X3T9.2/92-109 Rev 1 Date: 8/29/92 Author: I. Dal Allan [9/15/92]
Desc: Project Proposal for SCSI-3 Medium Changer Commands
Res:

X3T9.2/92-110 Date: 4/13/92 Author: D. Smythe [5/14/92]
Desc: IDE (ATA) Document Changes
Res:

X3T9.2/92-111 Rev 1 Date: 7/27/92 Author: Peter Dougherty [9/15/92]
Desc: Additional ASC/ASCO Codes for Data Compression
Res: Accepted for SCSI-3 at August 92 plenary

X3T9.2/92-112 Date: 5/5/92 Author: Scott Smyers [5/14/92]
Desc: Proposal for Alternate 68 Position P Connector
Res:

X3T9.2/92-113 Date: 5/5/92 Author: John A. Gallant [5/14/92]
Desc: April 28 SCSI-2 Queuing TIB Working Group Meeting Minutes
Res:

X3T9.2/92-114 Date: 5/7/92 Author: Kurt Chan [5/15/92]
Desc: Transceiver skew recommendations
Res:

X3T9.2/92-115 Date: 5/7/92 Author: Kurt Chan [5/15/92]
Desc: Cable length requirements
Res:

X3T9.2/92-116 Rev 1 Date: 5/18/92 Author: Charles Monia [7/15/92]
Desc: Pacetized SCSI System Models
Res:

X3T9.2/92-117 Date: 5/18/92 Author: D. W. Spence [7/15/92]
Desc: Fast SCSI Stubs Dimensions & Specifications Format
Res:

X3T9.2/92-118 Date: 4/27/92 Author: Robert Herron [5/15/92]
Desc: 3M Presentation on MDR Connector
Res:

X3T9.2/92-119 Date: 5/14/92 Author: Thomas Newman [7/15/92]
Desc: ATA Extensions Proposal -- ATA 68 Pin Connection
Res:

X3T9.2/92-120 Date: 5/18/92 Author: John Geldman [7/15/92]
Desc: Mapping the ATA Interface onto the SFF 68-pin Connector
Res:

X3T9.2/92-121 Date: 5/14/92 Author: Thomas Newman [7/15/92]
Desc: ATA Command O (No Operation) Proposal
Res:

X3T9.2/92-122 Date: 5/18/92 Author: D.W. Bill Spence [7/15/92]
Desc: Proposal for Additional Annex for SPI Standard
Res:

X3T9.2/92-123 Date: 5/14/92 Author: Kevin Gingerich [7/15/92]
Desc: Proposed Change to SPI
Res:

X3T9.2/92-124 Date: 5/15/92 Author: Steve Hunley [7/15/92]
Desc: Proposed Change to SPI
Res:

X3T9.2/92-125 Date: 5/14/92 Author: I. Dal Allan [7/15/92]
Desc: Letter on Patents to Steve Cornaby
Res:

X3T9.2/92-126 Date: 5/21/92 Author: L. Lamers [7/15/92]
Desc: Minutes of the X3T9.2 May General Working Group
Res:

X3T9.2/92-127 Date: 5/21/92 Author: Lamers/Spence [7/15/92]
Desc: SPI Working Group Minutes for May 1992
Res:

X3T9.2/92-128 Date: 5/27/92 Author: Rich Mizia [7/15/92]
Desc: Raw Cable Impedance and Bend Radius Test Results
Res:

X3T9.2/92-129 Date: 5/26/92 Author: R. Whiteman [7/15/92]
Desc: P-Cable connector dimension & tolerance study
Res:

X3T9.2/92-130 Date: 5/29/92 Author: Kyle Robison [7/15/92]
Desc: Synchronization Status & Errors
Res:

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X3T9.2/92-200R0

X3T9.2/92-131 Rev 1 Date: 8/13/92 Author: S. Smyers [9/15/92]
Desc: A Common Command Unit Architecture
Res:

X3T9.2/92-132 Date: 6/4/92 Author: Lynn Barra [7/15/92]
Desc: Transmittal of Public Review Comment #2 (ATA)
Res:

X3T9.2/92-133 Rev 1 Date: 7/24/92 Author: Scott Smyers [9/15/92]
Desc: Proposal to add a disconnect unconditionally after command phase
Res:

X3T9.2/92-134 Rev 1 Date: 8/4/92 Author: Jeffrey Williams [9/15/92]
Desc: Response to 92-111
Res: Accepted for SCSI-3 at August '92 plenary

X3T9.2/92-135 Date: 7/20/92 Author: Ed Gardner [9/15/92]
Desc: SCSI-3 Serial Bus Protocol (SBP)
Res:

X3T9.2/92-136 Date: 6/19/92 Author: H. Waltersdorf & S. Roland [7/15/92]
Desc: Internal Non-Shielded Connectors
Res:

X3T9.2/92-137 Date: 5/19/92 Author: B. Ham [7/15/92]
Desc: Hot Plugging Requirements for SPI
Res:

X3T9.2/92-138 Rev 1 Date: 6/23/92 Author: B. Ham [7/15/92]
Desc: Single SCSI cable for all forms of SCSI
Res:

X3T9.2/92-139 Rev 1 Date: 8/11/92 Author: S. Cornaby [9/15/92]
Desc: Appendix for SPI on Unitized Connector
Res:

X3T9.2/92-140 Date: 6/10/92 Author: Lynn Barra [7/15/92]
Desc: Transmittal of Public Review Comment #3 (ATA)
Res:

X3T9.2/92-141 Rev 4 Date: 10/10/92 Author: G. Penokie [11/15/92]
Desc: SCSI-3 Queuing Model
Res:

X3T9.2/92-142 Date: 6/23/92 Author: J. P. McGrath [9/15/92]
Desc: ATA Public review comments
Res:

X3T9.2/92-143 Date: 6/23/92 Author: J. P. McGrath [9/15/92]
Desc: Capacitance on SCSI Signal Lines
Res:

X3T9.2/92-144 Date: 6/25/92 Author: L. Lamers [7/15/92]
Desc: Minutes of X3T9.2 Plenary Meeting #100
Res:

X3T9.2/92-145 Date: Author: John Scheible [9/15/92]
Desc: SCSI mapping for SSA
Res:

X3T9.2/92-146 Date: 7/15/92 Author: Lynn Barra [9/15/92]
Desc: Public Review Comment #1 on SCSI-2
Res:

X3T9.2/92-147 Date: 8/21/92 Author: Del Shoemaker [9/15/92]
Desc: Response to SCSI-2 Public Review Comment #1
Res:

X3T9.2/92-148 Rev 2 Date: 7/21/92 Author: D. Steele [9/15/92]
Desc: Active Negotiation Driver Requirements for SPI
Res:

X3T9.2/92-149 Rev 1 Date: Author: John Geldman [9/15/92]
Desc: Demand Mode DMA ATA
Res:

X3T9.2/92-150 Date: Author: Tom Debiec [11/15/92]
Desc:
Res:

X3T9.2/92-151 Date: 7/17/92 Author: Mehran Ramezani [9/15/92]
Desc: Two new commands for ATA
Res:

X3T9.2/92-152 Date: 7/20/92 Author: Mehran Ramezani [9/15/92]
Desc: DMA Timing Changes In ATA
Res:

X3T9.2/92-153 Date: 7/18/92 Author: Edward A. Gardner [9/15/92]
Desc: Comments on Blind-pluggable Connector
Res:

X3T9.2/92-154 Rev 1 Date: 10/15/92 Author: J. Gallant [11/15/92]
Desc: Extensions to the Common Access Method (CAM-2)
Res:

X3T9.2/92-155 Date: 7/21/92 Author: C. Mooley [9/15/92]
Desc: Connector Requirements
Res: Accepted for inclusion in SCSI-3 August 92.

X3T9.2/92-156 Date: 7/18/92 Author: Florin Oprescu [9/15/92]
Desc: SCSI Termination Sensing Proposal
Res:

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X3T9.2/92-200R0

X3T9.2/92-157 Date: 7/22/92 Author: Shashir Shah [11/15/92]
Desc: LBA address for ATA
Res:

X3T9.2/92-158 Date: 7/23/92 Author: L. Lamers [9/15/92]
Desc: Minutes of July 1992 General Working Group
Res:

X3T9.2/92-159 Date: 7/30/92 Author: D.W. Spence [9/15/92]
Desc: SPI Working Group Minutes
Res:

X3T9.2/92-160 Date: Author: Dean Wallace [11/15/92]
Desc: TI Constant Current Mode Terminator
Res:

X3T9.2/92-161 Date: Author: Florin Oprescu [9/15/92]
Desc: Termination Sensing Proposal
Res:

X3T9.2/92-162 Rev 1 Date: 7/31/92 Author: G. Houlder [9/15/92]
Desc: New ASC/ASCO for Power-on Reset
Res:

X3T9.2/92-163 Date: 8/18/92 Author: Charles Monia [9/15/92]
Desc: Domain Definitions and Linked Commands (SAM)
Res:

X3T9.2/92-164 Date: Author: J. Williams [11/15/92]
Desc: New Density codes Tape
Res:

X3T9.2/92-165 Date: 8/18/92 Author: R. Gannon [11/15/92]
Desc: Serial Cable Prototypes
Res:

X3T9.2/92-166 Date: 8/18/92 Author: L. Lamers [9/15/92]
Desc: X3T9.2 Meeting #101 Minutes
Res:

X3T9.2/92-167 Date: 8/18/92 Author: J. Lohmeyer [9/15/92]
Desc: Proposed SPARC Policy on Conformance Testing
Res:

X3T9.2/92-168 Date: 8/17/92 Author: J. P. McGrath [9/15/92]
Desc: ATA Download Microcode Command
Res:

X3T9.2/92-169 Date: 8/18/92 Author: R. Bailly [9/15/92]
Desc: Conformance Testing Presentation
Res:

X3T9.2/92-170 Date: 8/15/92 Author: D. Allan [9/15/92]
Desc: SFF pinouts for SPI annexes
Res:

X3T9.2/92-171 Date: 8/18/92 Author: E. Gardner [11/15/92]
Desc: Presentation on SBP at August Plenary
Res:

X3T9.2/92-172 Date: 8/20/92 Author: L. Lamers [9/15/92]
Desc: Letter to K. McMillan on Letter Ballot Procedure
Res:

X3T9.2/92-173 Date: 8/20/92 Author: L. Lamers [9/15/92]
Desc: Letter to K. McMillan on E-mail use
Res:

X3T9.2/92-174 Date: 8/20/92 Author: M. Freeman [9/15/92]
Desc: Minutes of July 13, 1992 Grass Roots Meeting
Res:

X3T9.2/92-175 Date: 8/26/92 Author: J. Lohmeyer [9/15/92]
Desc: Letter Ballot
Res:

X3T9.2/92-176 Date: 8/26/92 Author: J. Lohmeyer [9/15/92]
Desc: Letter Ballot
Res:

X3T9.2/92-177 Date: 8/26/92 Author: J. Lohmeyer [9/15/92]
Desc: Letter Ballot
Res:

X3T9.2/92-178 Date: 8/26/92 Author: J. Lohmeyer [9/15/92]
Desc: Letter Ballot
Res:

X3T9.2/92-179 Date: 8/26/92 Author: J. Lohmeyer [9/15/92]
Desc: Letter Ballot
Res:

X3T9.2/92-180 Date: 8/26/92 Author: J. Lohmeyer [9/15/92]
Desc: Letter Ballot
Res:

X3T9.2/92-181 Date: 8/27/92 Author: D.W. Spence [9/15/92]
Desc: Terminator & Driver Characteristics
Res:

X3T9.2/92-182 Date: 8/30/92 Author: R. Snively [9/15/92]
Desc: SCSI-3 Fiber Channel Protocol
Res:

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X3T9.2/92-200R0

X3T9.2/92-183 Date: 6/23/92 Author: J. W. McGrath [9/15/92]
Desc: Current Sink for ATA drivers Operating at 3.3 volts
Ree:

X3T9.2/92-184 Date: 9/16/92 Author: G. Penokie [11/15/92]
Desc: Codes, ASC, ASCQ, & Values Committed in SCSI-3
Ree:

X3T9.2/92-185 Date: 9/15/92 Author: L. Leach [11/15/92]
Desc: Format Track Definition for ATA
Ree:

X3T9.2/92-186 Date: 9/21/92 Author: J. Lohmeyer [11/15/92]
Desc: Response to ATA PR comment 1
Ree:

X3T9.2/92-187 Date: 9/21/92 Author: J. Lohmeyer [11/15/92]
Desc: Response to ATA PR comment 2
Ree:

X3T9.2/92-188 Date: 9/21/92 Author: J. Lohmeyer [11/15/92]
Desc: Response to ATA PR comment 3
Ree:

X3T9.2/92-189 Date: 9/21/92 Author: J. Lohmeyer [11/15/92]
Desc: Response to ATA comment 4
Ree:

X3T9.2/92-190 Date: 9/21/92 Author: J. Lohmeyer [11/15/92]
Desc: Response to ATA comment 5
Ree:

X3T9.2/92-191 Date: 9/21/92 Author: J. Lohmeyer [11/15/92]
Desc: Response to ATA comment 6
Ree:

X3T9.2/92-192 Date: 9/21/92 Author: J. Lohmeyer [11/15/92]
Desc: Jeopardy Letter(s) for September 1992
Ree:

X3T9.2/92-193 Date: 9/25/92 Author: Lamers/Lohmeyer [11/15/92]
Desc: ATA Minutes
Ree:

X3T9.2/92-194 Date: 9/25/92 Author: Lamers/Lohmeyer [11/15/92]
Desc: X3T9.2 September Meeting Minutes
Ree:

X3T9.2/92-195 Date: 10/9/92 Author: Dal Allan [11/15/92]
Desc: Small Form Factor ATA Annex
Ree:

X3T9.2/92-196 Date: 10/9/92 Author: Dal Allan [11/15/92]
Desc: Small Form Factor SPI Annex
Ree:

X3T9.2/92-197 Date: 10/12/92 Author: Dennis Pak [11/15/92]
Desc: IEEE P1285 Liaison Report
Ree:

X3T9.2/92-198 Date: 10/9/92 Author: John Lohmeyer [11/15/92]
Desc: Proposal for Funding X3T9.2 Technical Editors
Ree:

X3T9.2/92-199 Date: 10/12/92 Author: Gerald Marazas [11/15/92]
Desc: SCSI-3 Serial Bus Protocol
Ree:

X3T9.2/92-200 Date: 10/15/92 Author: Lamers/Lohmeyer [11/15/92]
Desc: Minutes of X3T9.2 Meeting #102
Ree:

X3T9.2/92-201 Date: 9/8/92 Author: Daniel Arnold [11/15/92]
Desc: OASIS Update
Ree:

X3T9.2/92-202 Rev 1 Date: 10/12/92 Author: Charles Monia [11/15/92]
Desc: SAM Addressing Proposal
Ree:

X3T9.2/92-203 Date: 10/15/92 Author: Lamers/Spence [11/15/92]
Desc: SPI Working Group Minutes for October 1992
Ree:

X3T9.2/92-204 Date: 10/15/92 Author: Lamers/Freeman [11/15/92]
Desc: Minutes of Grass Roots Meeting #2 -- October 1, 1992
Ree: