To: T10 Technical Committee
From: Rob Elliott, HP (elliott@hp.com)
Date: 7 May 2004
Subject: 04-151r1 Minutes of SCSI to ATA translation study group

Revision history
Revision 0 (4 May 2004) First revision
Revision 1 (7 May 2004) Corrected

1 Opening remarks

John Lohmeyer called the meeting to order at 9 am Tuesday 4 May 2004. He thanked Bob Snively of Brocade for hosting the meeting. As usual, the people present introduced themselves.

2 Attendance and membership

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

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SCSI/ATA Translation Study Group


        Name          S      Organization        Electronic Mail Address
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Mr. osama aweida      V  Quantum                  osama dot aweida at
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Mr. Tim Symons        P  Adaptec, Inc.            Timothy_Symons at
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Ms. Pat Thaler        P  Agilent Technologies     pat_thaler at agilent
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Mr. Dexter Anderson   P  Crossroads Systems, Inc. danderson at crossroads
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Mr. Kevin Marks       P  Dell, Inc.               kevin_marks at dell dot
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Mr. Kenneth Hirata    A  Emulex                   Ken dot Hirata at Emulex
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Mr. Michael Banther   V  Hewlett Packard Co.      michael_banther at hp
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Mr. Wayne Bellamy     V  Hewlett Packard Co.      wayne dot bellamy at hp
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Mr. Rob Elliott       P  Hewlett Packard Co.      Elliott at hp dot com
Mr. Steven Fairchild  V  Hewlett Packard Co.      Steve dot Fairchild at
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Mr. George O. Penokie P  IBM / Tivoli Systems     gop at us dot ibm dot com
Mr. Robert Sheffield  P  Intel Corp.              robert dot l dot
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Mr. Roger Jeppsen     V  Intel Corporation        roger dot c dot jeppsen
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Mr. Nathan Marushak   V  Intel Corporation        Nathan dot Marushak at
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Mr. David Hawks       P  Iomega Corp.             hawks at iomega dot com
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    Mr. Samantha Ranaweera V  LSI Logic Corp          sranawee at lsil dot com
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    Mr. John Lohmeyer      P  LSI Logic Corp.         lohmeyer at t10 dot org
    Mr. Martin Czekalski   A  Maxtor Corp.            marty_czekalski at
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    Mr. Mark Evans         P  Maxtor Corp.            mark_evans at maxtor dot
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    Dr. David Nagle        AV Panasas                 dnagle at panasas dot com
    Mr. Greg Elkins        V  QLogic Corp.            greg dot elkins at
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    Mr. Jim Coomes         A  Seagate Technology      jim dot coomes at
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    Mr. Jim Hatfield       V  Seagate Technology      James dot C dot Hatfield
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    Mr. Robert Kando       A  Texas Instruments       Robert_Kando at ti dot
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    Mr. Ron Mathews        P  UNISYS Corporation      ronald dot mathews at
                                                      unisys dot com
    Mr. Curtis Stevens     V  Western Digital         Curtis dot Stevens at
                                                      wdc dot com
    Mr. Rich Ramos         V  Xyratex                 rich_ramos at us dot
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    33 People Present

    Status Key:  P   -  Principal
                 A,A# -  Alternate
                 AV  -  Advisory Member
                 L   -  Liaison
                 V   -  Visitor
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3 Minutes

3.1 04-136r0 SCSI to ATA Command Translations (Steve Johnson, LSI Logic)

Steve Johnson (LSI Logic) introduced the reasons for the study group and provided a short list of topics to be decided in this meeting.

Curtis Stephens (Western Digital) noted that SCSI to ATA translation has already been done already by a wide variety of products, especially for ATAPI MMC devices (CDs and DVDs). Would a standard be used if it diverged from existing implementations? The group discussed the scope of the effort and seemed to feel that field/bit level translation needs to be addressed for it to be worthwhile.

3.1.1 What should the study group produce?

The group discussed whether it should be a standard or a technical report and favored a standard. As a standard, it can use informative annexes for less crucial material.

3.1.2 Who volunteers?

Bob Sheffield (Intel) offered to be the project editor. John Lohmeyer and Steve Johnson volunteered to chair the meetings. Mark Evans volunteered to be the secretary.

The group discussed where/when meetings would be held and the relationship with T13 (ATA Standards). Only 1/2 day will probably be available during T10 weeks (Tuesday mornings) if the meeting must precede the plenary. T13 typically meets on Tue/Wed/Thu, so any meetings colocated with T13 would have to be on Monday or Friday.

3.1.3 What versions of standards should be translated?

The group agreed the first focus should be on translating SAM-3, SPC-3, SBC-2 (disk drives) to ATA/ATAPI-7 Volume 1 and Serial ATA II Extensions (native command queuing). A secondary focus should be on translating SAM-3, SPC-3, and other SCSI command sets (e.g. MMC-4, SSC-3) to ATA/ATAPI-7 Volume 1 devices using ATAPI (the PACKET command) - essentially just translating SCSI to a subset of SCSI.

Jim Hatfield (Seagate) noted that Serial ATA II Extensions is not a fully public document and is not a T13 standard. The group noted that the SATA WG has provided all its specifications (including that, port selector, and port multiplier) to T10 as T10 documents to facilitate interoperability with SAS.

3.1.4 Technical discussion

Steve and Bob asked how the document should be structured. Curtis suggested tables of the fields, noting any specific rules on each of them.

George Penokie (IBM) suggested the project name be SAT - SCSI to ATA Translation command standard.

Curtis and others suggested that LOG SELECT be translated to support SMART.

Steve Fairchild (HP) asked if saveable mode page settings like write caching are expected to be stored on disk so if the disk moves, the setting remains the same. The translator could use some application pages in ATA SMART commands to store some information.

Nathan Marushak (Intel) suggested REPORT SUPPORTED OPCODES and REPORT SUPPORTED TASK MANAGEMENT FUNCTIONS.

The group discussed the INQUIRY command VENDOR ID, PRODUCT ID, and PRODUCT REVISION NUMBER fields. Should they contain information about the translator or hashed/truncated information from the IDENTIFY DEVICE command?

The group discussed task management function translation.

Wayne Bellamy (HP) suggested that the translator could perform SCSI queuing even if the ATA drives do not support native command queuing.

The group discussed multi-initiator support and SAS STP translations.

Nathan Marushak (Intel) suggested mapping READ DEFECT DATA GLIST feature to a new equivalent ATA/ATAPI-7 feature.

Rob Elliott (HP) suggested a SCSI command that carries an ATA command as its payload (a reverse PACKET command). Curtis noted a similar concept - a T13 technical report working on a SMART passthrough command to allow vendor-specific commands be sent to an ATA device. SMART returns status in several registers, not just the error register (ERROR bit could be 0).

4 Recommendations and action items

John Lohmeyer, Steve Johnson, and Bob Sheffield will prepare a project proposal for a new standard for the July T10 plenary.

Bob Sheffield will prepare a template for the document seeded from 04-136r0.

The group requested a meeting slot on Tuesday morning during July T10 week.

Michael Banther (HP) requested that any teleconferences be held at 8-9 am Pacific time to facilitate participation from Europe.

5 Meeting schedule

Bob Sheffield will host a teleconference (with WebEx) on Friday June 4th at 9 am.

6 Adjournment

The meeting adjourned at 11:45 am.