To: T10 membership
From: Paul Entzel
Subject: Minutes of the ADI Working group, July 16, 2002
Document: T10/02-239r0

1. Introductions

Paul Suhler called the meeting to order at 9:00. He thanked LSI Logic for hosting the meeting. The attendees introduced themselves. The following people were in attendance:

Name	Organization	email
Rod Wideman	ADIC	rod.wideman@adic.com
Robert Griswold	Crossroads Systems	rgriswold@crossroads.com
Kevin Butt	IBM	kdbutt@us.ibm.com
Lee Jesionowski	IBM	ljesion@us.ibm.com
Paul Entzel	Quantum	paul.entzel@quantum.com
Paul Suhler	Seagate Technology	paul.a.suhler@seagate.com
Tuong Vu	Sony	tuong.vu@am.sony.com
Erich Oetting	Storage Technology	erich_oetting@stortek.com
Susan Gray	Quantum	susan.gray@quantum.com
Steve Hellwege	Quantum	steve.hellwege@atlp.com

2. Call for a Secretary

Paul Suhler asked if anyone would volunteer to be the full time secretary. Nobody volunteered, so Paul Entzel again agreed to perform this duty.

3. Approval of agenda

The agenda 02-238r1 was approved as marked up.

4. Approval of previous meeting minutes

The minutes of the last meeting were approved without changes (02-147r0). The minutes of the conference call (02-223r0) were changed as follows: fix action item D to remove the reference to Rob Basham and change Rob to Rod in discussion item F change. Minutes approved with the above changes.

5. Review of action items

1. Find a permanent secretary for this committee. C*arry-over*
2. Michael Banther will produce a proposal for additional MAM attributes. This will incorporate some of the additional data called for by 02-097r1. C*arry-over*
3. Paul Suhler will update 02-106r2 and provided it to Bob Griswold. *Complete*
4. Paul Suhler will find the document we produced in January laying out the transport layer frame and submit it to Bob Griswold for inclusion in ADT. Default settings for baud rate and stop bits will be included. C*omplete, 02-233r0*
5. Michael Banther will produce a proposal for the physical layer signals for ADP based off of 02-148r0. The proposal will include a recommended connector on the back of the drive. *Carry-over*
6. Bob Griswold will create new revisions of ADP, ADT, and ADC based on the proposals approved at this meeting. *Carry-over*

7. Rod Wideman will produce a proposed state diagram covering the VHF polling frame status bits. *Complete, 02-257r0*
8. Paul Suhler will post the straw-man frame format as a proposal to T10. *Complete, 02-233r0*
9. Lee Jesionowski will produce a list of UA conditions that could be presented by an ADC device. *Agenda item*
10. The group needs to review Tape Alert in SSC-2 looking for changes that are required. *Agenda item*
11. Paul Suhler will create a proposal for Seagate's implementation of MODE parameters for port control and load and eject control. *Complete, 02-234r1*

6. Agenda items

a. Status of skeleton standards

Bob Griswold announced that recent events at his company have increased his workload leaving little time to perform this task. He does not want to give up this duty. He would like the group to help decide on a structure for the documents and start assigning people to provide various sections. An agenda item was added to outline the device model for ADC.

b. Tape Alert

The group would like to repackage the Tape Alert flags and possibly add new flags to cover other types of conditions that should be reported in this environment. The packaging was covered by a previous proposal, with a question still remaining about bit ordering.

A wording change was proposed for Tape Alert codes 0Dh and 0Eh to expand their scope to deal with other types of mechanical medium failures. Rod Wideman would like a new flag to report an unrecoverable failure to unload the medium. He would like help from the drive on failures like this to determine if the medium may still be OK.

New Tape Alert flags:
38h, Flag name is Unrecoverable Unload Failure. Support is optional. Flag type is Critical. Recommend application client message is "The operation has failed because the medium cannot be unloaded. 1. Do not attempt to extract the tape cartridge. 2. Call the tape drive supplier help line." The probable cause is "The drive is unable to unload the medium".

39h, Flag name "Automation Interface Failure", Support is optional, Flag type is Critical. Recommend message "The tape drive has a problem with the automation interface: 1. Check the power to the automation system. 2. Check the cables and cable connections. 3. Call the supplier help-line if problem persists." Probable cause "The drive has identified an interface fault".

3Ah, Flag name "Firmware Failure". Type is optional. The type is a warning. The message is "The tape drive has reset itself due to a detected firmware fault. If problem persists, call the supplier help-line". Probable cause, "firmware bug".

Change probable cause in 24h to "Cooling problem".

In 0Dh and 0Eh change the probable cause to "Tape snapped/cut or other cartridge mechanical failure where…". Change the name to "recoverable or unrecoverable cartridge mechanical failure". In the application message, change the term "tape in the drive has snapped" to "cartridge in the drive has experienced a mechanical failure".

The group agree that we would like to obsolete and remove the medium changer Tape Alert flags from SSC-2.

The group discussed a proposed change to 02-180r0 with regards to the bit order for the Tape Alert flags in light of the conflict discovered with the MAM parameter in SSC-2. The change is to flip the order of the bits within the bytes. Moved by Kevin and seconded by Paul Suhler. Approved without dissent.

c. ADC SCSI Commands

Paul Suhler presented 02-106r3. The group decided that sections 4 and 5 are not desirable for this standard. In its place, the device model should describe the option to include another LUN over the ADP to access the SSC command set, and that LUN would be susceptible to reservations and other rules governing the LUN. Support for this LUN is optional, and may be non-compliant with the normal command set due to limitation of the protocol.

The text in section 2 that limits the device to the command set list was questioned. This paragraph will be removed. Section 3.4 was dropped since device specific mode pages will cover this functionality. The MODE SELECT(10) command will be changed to mandatory. The MODE SENSE(6) and MODE SELECT(6) commands were removed from the list. Comment 3 will be removed from the table in section 2. The text in section 3.4 referring to Unit Attentions will be changed to reference "shared" mode parameters.

Paul Suhler will produce a revision 4 of this document with the above changes.

d. Unit Attentions for ADC

Lee Jesionowski discussed the Unit attentions that could be reported to the ADC device.
29XXh are desirable to be reported.
2800h will not be reported.
2A01h will be reported when shared mode parameters are changed.
3F01h will be reported following a successful firmware update process.

Lee moved this be included in the Unit Attention section in the device model section of ADC. Paul Suhler seconded. Approved without dissent.

e. Mode Pages

02-228r1

Rod Wideman presented changes to 02-228 made following the conference call. Text has been added placing limitations on the WWN that can be set by the library. The Serial Number has been removed from the list of configurable parameters. Several other changes were made. The group thinks that the communication parameters would be better handled at the transport layer.

02-234r1

Paul Suhler presented 02-234r1 which describes a MODE page that would allow configuration of the parameters from 02-228r1. After discussion, it was decided that there will be a single mode bit that will control if a tape may ever be ejected without ADC control. For eject, the device model will list a hierarchy of control that shows the front panel as highest priority, the ADC LUN next, and finally the SSC. Firmware and cleaning tapes will be defined to unload the tape at completion of their operation, but eject would be controlled by the ADC Eject Control bit.

02-253r0

Paul Entzel presented 02-253r0 which describes an alternate set of MODE pages for the ADC device. The following changes were agreed to (thanks to Rod Wideman for taking notes while I was presenting this material):

Section 2.1

Node WWN discussion – does it apply to Logical Unit or not? LUN0 **may** choose to report the Node WWN (or it may not). This is from FCP-2, section 5.3. Paul's proposal allows setting the Node's WWN, the Port's WWNs, and the Logical Unit's WWN. Since the LU WWN is what is reported, the question is whether the Node WWN is associated with the actual problem of host-side "binding" when a device is replaced.

Consensus for now is to leave the ability to set all three.

Discussion for Node WWN setting to include (current UNN field):
- Use current
- Use manufacturing default
- Use LUN0 setting
- Use the value passed in the field
- Creates a 2-bit field

Discussion about what extends to iSCSI. Insufficient information within group to resolve.

Section 2.2

Discussion of Save Pages and behavior of drive when removed, or other failure modes. Save Pages support is optional, but automatic port enable requires Save Pages without explicit APE bit. Save Pages does the same thing as APE. If you don't support Saved Pages, you can't automatically go on the bus (PE default = 0). Comments to cover all descriptors.

Section 2.2.3

Would like to be able to reference Protocol Identifier table in SPC.

Section 2.2.4

Additional four items were discussed, no interest.

Section 2.2.5

Similar discussion for UWWN field as in section 2.1 to use 2-bit field and the same four possible states.

Much discussion regarding a field for hard addressing support (if hard address is not obtained, does device participate?). Change UHA meaning or add bit.

Correct bytes 5-6 field definitions.

Section 2.3

Need descriptor for ADC.

Section 2.3.3

Move Logical Unit Number into individual descriptors.

Section 2.3.4

Remove serial number fields from descriptor. (Keep on four-byte boundaries).

Make the "update WWN" field names consistent.

Discussion as to whether all items are appropriate for device control (WP, density, etc.) or should they be available as separate items (command or other). Resolution tabled for future discussion.

General

Current consensus is to adopt this approach for mode pages, parameters pending further discussion.

Bob Griswold moved that 02-253r0 as marked up be included in ADC. Paul Suhler seconded. Approved without dissent. Paul Entzel will update 02-253 to revision 1 and post it to the T10 web site. He will also provide Bob with Word format source for this proposal.

f. Outline the ADC document

Bob Griswold presented the skeleton of ADC that he has put together so far. He based the skeleton off of SSC-2.

7. Unscheduled business

None.

8. Next meeting requirements

Paul Suhler will request 8 hours next T10 meeting.

9. Action Items review:

1. Find a permanent secretary for this committee.
2. Michael Banther will produce a proposal for additional MAM attributes. This will incorporate some of the additional data called for by 02-097r1.
3. Michael Banther will produce a proposal for the physical layer signals for ADP based off of 02-148r0. The proposal will include a recommended connector on the back of the drive.
4. Paul Entzel will write a proposal to obsolete Tape Alert Flags 28h through 2Eh and removing the commands to support attached medium changers from SSC-2.
5. Everyone should submit other proposed changes for Tape Alert flags to Paul Entzel before the conference call for inclusion in the proposal.
6. Paul Suhler will produce a revision 4 of 02-106 with the changes agreed to in this meeting.
7. Paul Entzel will update 02-253 to revision 1 based on decisions at this meeting and post it to the T10 web site. He will also provide Bob Griswold with word format source for this proposal.
8. Bob Griswold will create revision 0 of ADC using his skeleton and the proposals approved in this meeting and last by 7 August 2002.
9. Paul Suhler will schedule a conference call and post a message to the T10 reflector announcing it 2 weeks ahead of it.

10. Adjournment

The meeting adjourned at 4:40.