

Draft Minutes  
Automation/Drive Interface (ADI) Working Group  
September 10, 2002  
9:05am – 4:45pm CDT

**Call to Order:**

The meeting was called to order at 9:05 AM by Paul Suhler, who thanked the host, Cisco Systems. Attendees are listed at the end of these minutes.

Susan Gray volunteered to be acting secretary for this meeting.

**Action Item Review:**

- a. Find a permanent secretary for this committee. *Still no volunteer for permanent secretary.*
- b. 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. *Discussion item for this meeting.*
- c. Bob Griswold will create revision 0 of ADC using his skeleton and the proposals approved in this meeting and last by 16 August 2002. *T10/adc-r00. Closed.*
- d. Paul Suhler – Find out approved method of referencing another standard. *Closed.*
- e. Bob Griswold – Research naming convention for different World Wide Names (Node, Port, LUN). *Bob will re-ask the question. Looking for an editorial convention not the underlying use of the name.*
- f. Kevin Butt – Create proposal for ADC to add RHA field and change definition of UHA to only indicate address field valid. Also to clarify whether address is AL\_PA or Assigned Loop Identifier. *Carryover.*
- g. Everyone – Review T10/02-257r0 and provide feedback to Rod Wideman. *Rod received no feedback. Closed.*
- h. Michael Banther – Proposal against ADC for Parallel SCSI descriptor in 02-253r1. *Discussion item for this meeting.*
- i. Paul Suhler – Investigate call-in availability for Sept. meeting. *Closed.*
- j. Everyone – Send to Paul Entzel currently used or preferred SOF characters. *Closed.*

**Agenda Items:**

1. Review of ADC revision 0.1                      adc-r00                      Bob Griswold

There are some proposals that have been approved in past meetings that are not included in the ADC document.

- 02-097r1 ADI drive poll – go into log parameters section
- 02-180r0 include in log parameters section

- 02-106r4 – the table is in the document, but the text is not.
- 02-253r1 – currently in there as log pages but should be mode pages.
- List of unit attentions from July meetings minutes (02-239r0 item D). They should go into the device model section.

Delete sections 4.2.2, 4.2.3, 4.2.5, 4.2.6.

Add a “Device server interaction” section (4.2.x), to describe interaction of the ADC and SSC device servers.

Add a “State Diagram” section (4.2.x)

Section 4.2.7 needs to address the issue that ADC does not consume SSC Tape Alert Flags and visa versa. Review old minute notes to see if text already exists.

Combine sections 5 and 6 into a single section (section 6 would be 5.1 if we add new commands)

## 2. ADI State Transition Table

02-257r0

Rod Wideman

It was suggested that “Load Complete” be changed to “Data Accessible” and “Access Allowed” be changed to “Carriage Accessible”.

Lots of discussion about the meaning of Access Allowed. To some it meant that the tape is physically accessible by the automation device. Meaning that the automation device could either push a tape into the drive or grab a tape out of the drive. To others it had the meaning of “access allowed” from the Read Element Status command. The usefulness of Unload complete was questioned. It was left to Rod to re-work the state table.

We started to identify which states would be considered “stable” and mandatory for the drive to report so the automation device would have a minimum set of states that it could reliably detect. However, this was postponed until the state table is finalized with respect to the above item.

We all agree that a mode page that describes the device state capabilities would be useful, but need to have the states defined before the new mode page could be defined.

## 3. Target device control page

02-351r0

Michael Banther

One issue brought up is that SPI-4 does not currently allow mode sub pages to be changed that include the parameters that this control page is changing. Michael will investigate further by looking at SPC and SES.

Move transceiver mode to byte 4 in order to leave a complete reserved byte.

Need to sort out what “Transceiver Mode” means, but leave this for future clarification.

Add a 2 bit control field to byte 4 with the following defined values:

- Ignore Transceiver mode
- Use Transceiver mode and drive the diffsense line
- Use Transceiver mode and don't drive the diffsense line

There was lots of discussion about when parameters could be changed. Basically we do not want the parameters to be changed if the port is already enabled. However, we also don't want to have to force the automation device to have to send multiple Mode Select commands to set the parameters and then enable the port. So, the tape drive shall return Illegal Request only when any parameter value is changed and the port is currently enabled.

4. ADT Frame format proposal                      02-274r0              Rod Wideman

This was basically a compilation of notes from an earlier meeting.

The start of frame and end of frame were chosen based on what the majority of vendors are currently using. However, it needs to be something unique so that this new frame format can be uniquely identified and allow support for legacy protocols.

This was only reviewed as an introduction to the next presentation.

5. Proposed frame format for ADT                      02-329r1              Paul Entzel

Link Services:

Exchange ID only really needs to be 1 byte – it was only made 2 bytes to make the header an even number of bytes. Do we want the header to be an even number of bytes?

Need to have a port logout. This would be useful for power down or error recovery. When received the receiver would abort exchanges, disable surrogate mode (tape drive), and disable port login. (To simplify the protocol, maybe only automation should send this.)

Also need to add a new ACK status similar to 6h to indicate Aborted – logged out.

Clarify ACK status of 5h, out of resources. It is similar to a SCSI Busy and means that the command could be retried later.

Clarify baud rate field in the last paragraph of section 6.3. There was confusion about the operating baud rate and the baud rate that is being negotiated.

Need to make the support of port login by the automation device optional so that devices that do not want asynchronous transmissions from the drive can ignore the logins.

Change the Resume frame to be NOP.

Mandatory link services would probably be ACK, Port Login and NOP.

The Pause feature is primarily intended to be used in an environment where the UART is multiplexed. Using this in a bi-directional environment could cause problems.

Need to add timeouts.

- receive ACK timeout
- receive frame timeout

Need to add error recovery procedures.

SCSI Frames:

Add Abort Task task management function

Do we need a target reset?

In 7.2 SCSI Command Frame the Buffer Allocation Length field needs to be worked on.  
Table 6 Use of "xfer ready" and "transfer ready" are inconsistent  
The UA bit is referenced several different ways in 8.4 AER Frame.

We ran out of time to finish discussing this proposal in detail. Any further notes should be emailed to Paul Entzel directly.

6. ADP work in progress                      02-358r0                      Michael Banther

This will eventually become a proposal for ADP document but needs more work before it is ready.

Attention – is this necessary if the ADT/ADC supports asynchronous notification?  
Consensus is that it is useful for multiplexed UART systems.

Much of the data is pulled from SAS and needs to be reviewed by an electrical engineer. Michael will run it by HP engineers first to make sure it is consistent before others need to spend time on it.

Need to add a ground line.

#### **New Action Items:**

1. Paul Entzel will post a message to the reflector to request start of frame characters.
2. Rod Wideman to send 02-180r0 to Bob Griswold for inclusion in the ADC document.
3. Bob Griswold to include existing proposals and updates noted in these minutes in ADC document by one week before next meeting.
4. Michael Banther to produce a proposal for device server interaction section in ADC document.
5. Paul Suhler to update section 4.2.1 of the ADC document.
6. Each of us to investigate possibility of participation in joint development of an emulation/test tool.

7. Rod Wideman will generate new state transition table without motion status and without "MAM accessible" and resolve Access Allowed, Unload Complete and Eject Complete.
8. Paul Suhler raised the motion to accept 02-351r0 with the changes noted in the minutes and Paul Entzel seconded the motion and it was passed by dissent.
9. Michael Banther to create 02-351r1 and provide it to Bob Griswold to incorporate it into ADC.
10. Paul Entzel will create 02-329r1 based on notes from meeting.
11. Paul Suhler to propose a date for a phone conference in October.

**Next Meeting Requirements:**

We will require the usual 9:00 AM to 5:00 PM slot at the November T10 Plenary Week..

**Adjournment:**

The meeting was adjourned at 4:45 PM.

**Attendees:**

Name	Organization	email
Rod Wideman	ADIC	rod.wideman@adic.com
Robert Griswold*	Crossroads Systems	rgriswold@crossroads.com
Michael Banther	Hewlett Packard	michael_banther@hp.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

\* By telephone.