

**TO:** T10 Membership  
**FROM:** Paul A. Suhler, Quantum Corporation  
**DATE:** 6 November 2007  
**SUBJECT:** T10/06-060r7, Features for ADC-2 and ADT-2

**06-060 Revision 7**

- Added document number for item 31.
- Item 32 deferred to ADT-3.

**06-060 Revision 6**

- Changed item 24 to completed.

**06-060 Revision 5**

- Changed item 25 to completed.

**06-060 Revision 4**

- Dropped items 8 and 21.
- Corrected name of state machine in item 24.

**06-060 Revision 3**

- Physical model incorporated in SSC-3.
- Reservation passthrough deferred to ADC-3.

**06-060 Revision 2**

- July 2006 updates.

**06-060 Revision 1**

- Dropped item 1, closed item 12, and assigned item 28.
- Added item 33 and assigned to Paul Entzel.

**06-060 Revision 0**

- Reopened item 1 and tentatively assigned to Michael Banther.
- Assigned item 18 to Paul Suhler.
- Clarified title of item 25.

**04-263 Revision 9**

- Dropped items 16, 20, and 29.
- Added document numbers as available.

**Revision 8**

- Closed item 27, clarification of Buffer Offset fields in SCSI IUs.

**Revision 7**

- Added item 27, clarification of Buffer Offset fields in SCSI IUs.

**Revision 6**

- Dropped items 4 and 26.
- Assigned item 25 to Michael Banther.

**Revision 5**

- Added status of items.
- Listed individual assigned each item.
- Added WORM to media types to be reported (item 26).

**Revision 4**

- Priority of each feature.
- State machine changes.
- New IUs.

**Revision 3:**

- Add density override to RMC LU descriptor.
- Clarify interactions of RMC and ADC device servers, physical device, and DT device.
- Modify model section to allow automation and DT devices with no ADT ports.
- Specify method to prepare and to retrieve dumps.
- Consolidated redundant entries for automation firmware update.

**Revision 2:**

- Modified description of real-time clock to refer to proposal against SPC-x.

**Revision 1:**

- Investigate whether ADC should address failover in multi-port drives.

**04-263 Revision 0:**

- Change “Device Status” to “Device Statistics” log page to TARGET LOG PAGES well-known logical unit.
- Consider interaction of the VHF Data WRTP bit and WORM media

**03-133 Revision 9:**

- Address Device Status log page to TARGET LOG PAGES well-known logical unit.

**Revision 8:**

- Mechanism for automation device to update its firmware from a medium in a DTD via the ADT.
- Resolve how the local SMC device server handles INQUIRY for page 83h with association = 2 (target device).

**Revision 7:**

- Add support to ADC DTD Primary Port Status log parameter and DTD Primary Port mode descriptor for SAS and possibly iSCSI.

**Revision 6:**

- Simplification of retryable error recovery.

**Revision 5:**

- Smaller ADI connector

**Revision 4:**

- Added a section to this document for feature descriptions that are not available in either T10 proposals or minutes.
- Identification Descriptor sub-page for ADC Device Configuration mode page.

**Revision 3:**

- Real-Time Clock
- Volume Identifier

**Revision 2:**

- Automation initiated/mediated DTD diagnostics
- Automation firmware update from tape via a read buffer command

**Revision 1:**

- Control of sense data masking via mode page
- Added links to documents

**Revision 0:**

- Passthrough bridging
- Progress indication

**General**

In the development of Automation Drive Interface standards, ADC and ADT, a number of concepts were discussed which were of insufficient urgency to include in the first generation standards. This document lists those concepts and the affected standards, as well as the documents and meeting minutes which present the most fully developed presentation of the concepts.

**Status of Items**

Open
Assigned
Completed
Dropped

Number	Feature	Affected Standards		Priority	Proposal documents	Minutes
		ADC-2	ADT-2			
1	Passthrough Bridging Reopened 01/09/2006 Dropped 05/08/2006	X	X	L	<a href="#">03-077r3</a>	10 – 11 March 2003 ADI WG meeting, <a href="#">03-117r0</a>
2	Progress Indication	X		L	<a href="#">ADC-r01</a> , clause 4.2.5	8 April 2003 ADI WG teleconference, <a href="#">03-159r0</a>
3	Control of Sense Data Masking	X		L	<a href="#">03-087r1</a>	8 July 2003 ADI WG meeting, <a href="#">03-236r0</a>
4	Automation initiated/mediated DTD diagnostics [Assigned to Wideman]	X		M	None	8 September 2003 ADI WG meeting, <a href="#">03-295r0</a>
5	Real-Time Clock Control	X		M	<a href="#">04-271</a>	None
6	Volume Identifier Control	X		M	None	None
7	Identification Descriptor	X		L	Note 1	None

Number	Feature	Affected Standards		Priority	Proposal documents	Minutes
		ADC-2	ADT-2			
	sub-page					
8	Smaller ADI Connector [Banther, 05-265]		X	H	None	23 February 2004 ADI WG teleconference, <a href="#">04-066r0</a>
9	Simplification of retryable error recovery.		X	L	None	8-9 March 2004 ADI WG meeting, <a href="#">04-080r0</a> , Unscheduled Business item f
10	ADC support for SAS and iSCSI. [iSCSI dropped]	X		H	None	12 July 2004 ADI WG meeting, <a href="#">04-199r0</a> , ADC LB comment Seagate-41.
11	Mechanism for automation device to update its firmware from a medium in a DTD via the ADT port.	X		M	ADC LB comment Seagate-25	8 July 2003 ADI WG meeting, <a href="#">03-236r0</a> ; and 29 July 2004 ADI WG teleconference, <a href="#">04-244r0</a>
12	How does the local SMC device server handle INQUIRY for page 83h with association = 2 (target device)? [Banther 05-310]	X		M	ADC LB comment HP- 88	29 July 2004 ADI WG teleconference, <a href="#">04-244r0</a>
13	Address Device Statistics log page to TARGET LOG PAGES well-known logical unit. Add parameters to Device Statistics log page.	X		L	ADC LB comment HP- 172	9 August 2004 ADI WG teleconference, <a href="#">04-256r1</a> , item 5a.
14	Consider interaction of the VHF Data WRTP bit and WORM media.	X		H	ADC LB comment HP- 159	
15	Investigate whether ADC- 2 should address failover in multi-port drives	X		M	ADC LB comment HP- 268	16 August 2004 ADI WG teleconference, <a href="#">04-266r0</a> , item 5a. Also <a href="#">04-197r1</a> .
16	Add density override to RMC LU descriptor [Dropped 7 November 2005]	X		M	ADC LB comment IBM Penokie-414	13 - 14 September 2004 ADI WG meeting, <a href="#">04-304r0</a> .
17	Clarify interactions of RMC and ADC device servers, physical device, and DT device. [Assigned to Suhler in SSC-3, 05-049]	X		L	None	

Number	Feature	Affected Standards		Priority	Proposal documents	Minutes
		ADC-2	ADT-2			
18	Modify model section to allow ADs and DTDs with no ADT ports. [Suhler, 06-061]	X		L	None	
19	Specify method to prepare and to retrieve dumps. [Assigned to Wideman, 05-158; 05-158r1 accepted 7/11/2005]	X		H	ADC LB comment IBM Butt-2	
20	Separate state machines for AD ports and DTD ports. [Assigned to Butt]		X	L	ADT LB comment IBM-27	8 November 2004 ADI WG meeting, <a href="#">04-385r0</a> .
21	Test IU [Assigned to Butt]		X	L	ADT LB comment IBM 122	
22	Device Reset IU		X	M	<a href="#">04-364r0</a>	
23	ADT Port State Machine, IU Statements in State Sub-clause		X	L	<a href="#">04-369r0</a>	
24	ADT Link Negotiation State Machine, IU Statements in State Description Sub-clause [Assigned to Banther]		X	L	07-321r3	
25	Negotiation of timeouts [Banther, 05-377, 07-025r2]		X	L	05-377 07-025r2	
26	Clarify reporting of data, cleaning, firmware, and WORM media. [Assigned to Wideman]	X		M	None	
27	Clarify use of Buffer Offset field in SCSI Transfer Ready and SCSI Data IUs. [Assigned to Erikson; 05-292r1 accepted 9/12/2005]		X	M	None	11 July 2005 ADI-2 WG meeting, 05-255r0, item 6.2.
28	Add parameters to Device Statistics log page. [Marks 06-183r1]	X		M	ADC LB comment HP-172	9 August 2004 ADI WG teleconference, <a href="#">04-256r1</a> , item 5a.
29	ADI bridging failover	X		M		12 September 2005 ADI-2 WG meeting, 05-329r1, item 5.8.
30	TapeAlert exception log page [Assigned to Banther]	X		M		
31	Sense signaling [Banther]		X	M	07-483r0	
32	Raise Max ACK Offset during negotiation as baud rate is lowered [Deferred from ADT-2 to ADT-3 by Banther per e-mail 6 November 2007]		X	M		12 September 2005 ADI-2 WG meeting.

Number	Feature	Affected Standards		Priority	Proposal documents	Minutes
		ADC-2	ADT-2			
33	Passthrough of reservations [Entzel 06-261r0.] Deferred to ADC-3	X		H		8 May and 10 July 2006 ADI-2 WG meetings
34	Remove X_ORIGIN and EXCHANGE ID from examples in Annex C. [Accepted and assigned to Paul Stone as an editorial change.]		X			21 September 2007 e-mail from Jon Allen

### Other References

This section documents requests that are not listed in meeting minutes or T10 documents

1. 4 November 2003 e-mail from Michael Banther

Hi Paul,

I'd like to request an area for consideration in ADI-2. I think that we should investigate altering the definition of the ADC Node Descriptor sub-page (6.2.2.1 in ADCr06) to become an Identification Descriptor sub-page. The Identification Descriptor sub-page would provide a general facility to alter any Identification Descriptor reported in VPD page 83h by a DTD. If we cannot alter the existing sub-page and maintain backwards compatibility, I would like to see the introduction of a new Identification Descriptor sub-page with the intention of making the Node Descriptor sub-page obsolete in a future generation of the standard (no sooner than ADI-3).

Could you please add this subject to the list for ADI-2?

Thanks,

Michael Banther  
Hewlett-Packard Ltd.  
Telephone +44 (117) 312-9503

2. 21 September 2007 e-mail from Jon Allen

Hi Paul,

I'm not sure what the procedure is for submitting input, but I'm currently implementing ADI for our library interface and noticed a discrepancy in the ADT-2 Spec.

In section 6.5.3.1 (ACK IU) It states:

"In an acknowledgement IU, the X\_ORIGIN and EXCHANGE ID fields are undefined and shall be ignored."  
(BTW it appears the word acknowledgment is misspelled here.)

In Annex C, sections C.4 2) - 7) contain the lines like:

"Upon receiving the Port Login IU, the DT device port sends an ACK IU with X\_ORIGIN, EXCHANGE ID, and FRAME NUMBER fields that match the Port Login IU it received."

If the first line is true, which from my experience it appears to be, then those lines in Annex C should have "X\_ORIGIN" and "EXCHANGE ID" removed.

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