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FROM: Peter Johansson

TO: T10 SBP-3 working group

DATE: July 13, 2001

RE: Public comment on target descriptors in SPC-2

In clause 7.2.6, "Target descriptors", there is no information for a target descriptor for IEEE 1394. I believe that this omission is inappropriate since Serial Bus Protocol 2 (SBP-2) is an NCITS-developed transport protocol suitable for SCSI. It is, in fact, elsewhere mentioned in the SPC-2 draft standard (see table 165, table C.5).

This omission is relatively simple to rectify. The text on the pages that follow is believed to be ready for inclusion in SPC-2 “as is”.

Because of the long development cycle for many T10 projects, I think it is very desirable to remedy this omission in SPC-2 before its approval as a standard. I believe that the remedy is not controversial and is therefore unlikely to significantly extend the approval process for SPC-2.

2 Normative references

2.1 Normative references

The following standards contain provisions that, by reference in the text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below.

Copies of the following documents may be obtained from ANSI: approved ANSI standards, approved and draft international and regional standards (ISO, IEC, CEN/CENELEC, ITUT), and approved and draft foreign standards (including BSI, JIS, and DIN). For further information, contact ANSI Customer Service Department at 212-642-4900 (phone), 212-302-1286 (fax) or via the World Wide Web at http://www.ansi.org.

2.2 Approved references

ISO/IEC 60027-2-am2 (1999-01), Letter symbols to be used in electrical technology - Part 2: Telecommunications and electronics (Amendment 2)

ISO/IEC 9316:1995-11, Small Computer System Interface -2 standard, (SCSI-2) [ANSI X3.270:1996]

ANSI/IEEE 394:1995, Extended Unique Identifier, 64-bit (EUI-64)

ANSI/IEEE Std 1394a-2000, High Performance Serial Bus—Amendment 1

ISO/IEC 14776-351, SCSI-3 Medium Changer Commands, (SMC) [ANSI NCITS.314:1998]

2.3 References under development

At the time of publication, the following referenced standards were still under development. For information on the current status of the document, or regarding availability, contact the relevant standards body or other organization as indicated.

ISO/IEC 14776-412, SCSI Architecture Model - 2 (SAM-2) [T10/1157-D]

ISO/IEC 14776-222, SCSI-3 Fibre Channel Protocol - 2 (FCP-2) [T10/1144-D]

T11/1331-D, Fibre Channel Framing and Signaling Interface (FC-FS)

7.2.5 Descriptor type codes

Target descriptors and segment descriptors share a single set of code values that identify the type of descriptor (see table 16). Segment descriptors use codes in the range 00h to BFh. The definitions of codes between C0h and DFh are vendor specific. Target descriptors use codes in the range E0h to FFh.

Table 16 — EXTENDED COPY descriptor type codes (part 1 of 2)

Descriptor type code	Reference	Description [a]	Shorthand [a]
00h	7.2.7.3	Copy from block device to stream device	block→stream
01h	7.2.7.4	Copy from stream device to block device	stream→block
02h	7.2.7.5	Copy from block device to block device	block→block
03h	7.2.7.6	Copy from stream device to stream device	stream→stream
04h	7.2.7.7	Copy inline data to stream device	inline→stream
05h	7.2.7.8	Copy embedded data to stream device	embedded→stream
06h	7.2.7.9	Read from stream device and discard	stream→discard
07h	7.2.7.10	Verify block or stream device operation	
08h	7.2.7.11	Copy block device with offset to stream device	block<o>→stream
09h	7.2.7.12	Copy stream device to block device with offset	stream→block<o>
0Ah	7.2.7.13	Copy block device with offset to block device with offset	block<o>→block<o>
0Bh	7.2.7.3	Copy from block device to stream device and hold a copy of processed data for the application client [b]	block→stream +application client
0Ch	7.2.7.4	Copy from stream device to block device and hold a copy of processed data for the application client [b]	stream→block +application client
0Dh	7.2.7.5	Copy from block device to block device and hold a copy of processed data for the application client [b]	block→block +application client
0Eh	7.2.7.6	Copy from stream device to stream device and hold a copy of processed data for the application client [b]	stream→stream +application client
0Fh	7.2.7.9	Read from stream device and hold a copy of processed data for the application client [b]	stream→discard +application client
10h	7.2.7.14	Write filemarks to sequential-access device	filemark→tape
11h	7.2.7.15	Space records or filemarks on sequential-access device	space→tape
12h	7.2.7.16	Locate on sequential-access device	locate→tape

[a] Block devices are those with peripheral device type codes 0h, 4h, 5h, 7h, and Eh. Stream devices are those devices with peripheral device type codes 1h and 3h. Sequential-access (indicated by "tape" in the shorthand column) devices are those with peripheral device type code 01h. See 7.3.2 for peripheral device type code definitions.

[b] The application client shall use the RECEIVE COPY RESULTS with a RECEIVE DATA service action to retrieve data held for it by the copy manager (see 7.14.3).

Table 16 — EXTENDED COPY descriptor type codes (part 2 of 2)

Descriptor type code	Reference	Description [a]	Shorthand [a]
13h	7.2.7.17	Image copy from sequential-access device to sequential-access device	<i>tape→<i>tape
14h	7.2.7.18	Register key	
15h - BFh		Reserved for segment descriptors	
C0h - DFh		Vendor unique descriptors	
E0h	7.2.6.2	Fibre Channel World Wide Name target descriptor	
E1h	7.2.6.3	Fibre Channel N_Port target descriptor	
E2h	7.2.6.4	Fibre Channel N_Port with World Wide Name checking target descriptor	
E3h	7.2.6.5	Parallel Interface T_L target descriptor	
E4h	7.2.6.6	Identification descriptor target descriptor	
E5h - E7h		Reserved for target descriptors	
E8h	7.2.6.5a	IEEE 1394 EUI-64 target descriptor	
E9h - FFh		Reserved for target descriptors	

[a] Block devices are those with peripheral device type codes 0h, 4h, 5h, 7h, and Eh. Stream devices are those devices with peripheral device type codes 1h and 3h. Sequential-access (indicated by "tape" in the shorthand column) devices are those with peripheral device type code 01h. See 7.3.2 for peripheral device type code definitions.

[b] The application client shall use the RECEIVE COPY RESULTS with a RECEIVE DATA service action to retrieve data held for it by the copy manager (see 7.14.3).

7.2.6.5a IEEE 1394 EUI-64 target descriptor format

The target descriptor format shown in table 22a is used to identify a target using its IEEE 1394 Extended Unique Identifier, 64-bits (EUI-64) and configuration ROM directory ID.

Table 22a — IEEE 1394 EUI-64 target descriptor format

Bit / Byte	7	6	5	4	3	2	1	0
0	DESCRIPTOR TYPE CODE (E8h)							
1	Reserved			NUL	PERIPHERAL DEVICE TYPE			
2	Reserved							
3	Reserved							
4	(MSB)	LOGICAL UNIT NUMBER						
5								(LSB)
6	(MSB)	EUI-64						
13								(LSB)
14	(MSB)	DIRECTORY ID						
16								(LSB)
17	Reserved							
27								
28	Device type specific parameters							
31								

The DESCRIPTOR TYPE CODE, PERIPHERAL DEVICE TYPE and NUL fields and the device type specific parameters are described in 7.2.6.1.

The LOGICAL UNIT NUMBER field specifies the logical unit within the SCSI device addressed by the data in the EUI-64 and DIRECTORY ID fields that shall be the source or destination for EXTENDED COPY operations.

The EUI-64 field shall contain the node's unique identifier (EUI-64) obtained from the configuration ROM bus infomation block, as specified by IEEE Std 1394a-2000.

NOTE 7a IEEE Std 1394a-2000 separately labels the components of the EUI-64 as NODE_VENDOR_ID, CHIP_ID_HI and CHIP_ID_LO. Collectively these form the node's EUI-64.

The DIRECTORY ID field shall contain the least significant 24 bits of the base address, within target's initial node space, of the unit directory specified by ANSI NCITS 325-1998.