T10/99-110 r0

Seagate Technology
10323 West Reno (West Dock)
Oklahoma City, OK 73127-9705
P.O. Box 12313
Oklahoma City, OK 73157-2313

Tel: 405-324-3070
Fax: 405-324-3794
gene_milligan@notes.seagate.com

Date: 1/7/99

To: John Lohmeyer

Cc:

From: Gene Milligan OKM251

Subject: SCSI Version Proposal Flavor Two for SPC-2

After the formation of T10, 94-198r2 X3T10 Standards Development Policies and Procedures was approved by T10. That guiding document included a clause:

"**1.2 Machine Readable Revision Reporting:**

X3T10 shall provide on a forward-looking basis a means for software interrogation of the revision level of compliant standard implementations. X3T10 shall also by a majority of the membership determine which document revisions are deemed appropriate for reporting. There is no requirement for revisions ahead of stabilization to be required for reporting, but the revisions at the time of stabilization and forwarding shall as a minimum be included in the appropriate list. For standards which become subject to the dpANS-(n+1) provisions the reporting shall accommodate a distinction of revisions extending throughout the series. (Examples of dpANS (n+1) are ATA, ATA-2, ATA-3.) In the case of layered standards, the physical layer revision provision may not be appropriate at that layer, however an upper layer protocol standard shall provide provision for the optional reporting of revisions of lower layers without the facility. This provision is included to facilitate the concept of regular publication."

As a result of this guidance I generated 95-154r1 which was incorporated into ATA-3 (at that time a T10 project) and which still provides the basis for software interrogation in the subsequent ATA/ATAPI standards through ATA/ATAPI-5.

With the above guidance and the ATA experience along with inputs from the working group, I generated 95-349r0 which proposes a similar capability for SCSI.

At this point those that felt reporting what standards the implementation supported was too complex and the proposal was not accepted. As a result the X3T10 Standards Development Policies and Procedures were revised 11/9/95, 94-198r3 to remove the machine readable revision control clause.

Recognizing the complexity of not being able to determine what version of the standards are supported by a product is becoming more detrimental, the last working group requested that a modest ASCII capability be added.

Although I prefer the approach proposed in 95-349, I have generated and attached an ASCII alternative as I understood the request of the working group.

My preference for 95-349 is mainly that it is precise, allowing software to make decisions based upon the data, and uses only 10 bytes (12 would be required to expand it to a secondary command set) while leaving 30 Reserved bytes for future INQUIRY response data. The ASCII proposal perhaps could be used by software if the proposal's recommendations were changed to mandatory requirements although the definitions are subject to more interpretation and it uses up all 40 of the reserved bytes (8 bytes could be reclaimed if the provision for a secondary command set were dropped).

Your obedient servant,

Gene Milligan
T10 Principal Member

7.4 INQUIRY command

7.4.1 Standard INQUIRY data

Table 19 - Standard INQUIRY data format

Bit / Byte	7	6	5	4	3	2	1	0
0	PERIPHERAL QUALIFIER			PERIPHERAL DEVICE TYPE				
1	RMB	Reserved						
2	~~ISO/IEC VERSION~~		~~ECMA~~ VERSION			~~ANSI VERSION~~		
3	AERC	Obsolete	NORMACA	HISUP	RESPONSE DATA FORMAT			
4	ADDITIONAL LENGTH (n-4)							
5	SCCS	Reserved						
6	BQUE	ENCSERV	VS	MULTIP	MCHNGR	ACKREQQ†	ADDR32†	ADDR16†
7	RELADR	WBUS32†	WBUS16†	SYNC†	LINKED	TRANDIS†	CMDQUE	VS
8	(MSB)	VENDOR IDENTIFICATION						
15								(LSB)
16	(MSB)	PRODUCT IDENTIFICATION						
31								(LSB)
32	(MSB)	PRODUCT REVISION LEVEL						
35								(LSB)
36		Vendor-specific						
55								
56		~~Reserved~~						
95		ASCII Version Information						
	Vendor-specific parameters							
96		Vendor-specific						
n								
Note: The meanings of these bits are specific to SIP (see 7.4.2). For protocols other than SIP, these bits are reserved.								

~~The values in the ISO VERSION and ECMA VERSION fields are defined by the International Organization for Standardization and the European Computer Manufacturers Association, respectively.~~

The ~~ANSI~~ VERSION field indicates the implemented version of this standard and is defined in table 22

Table 22 - ~~ANSI~~ Version

Code	Description
00h	The device does not claim conformance to any standard.
01h	Obsolete
02h	The device complies to ANSI X3.131-1994 (SCSI-2)
03h	The device complies to ANSI X3.301-1997. (SPC)
04h	The device complies to this standard.
05h -0 7h	Reserved
08h-0Fh	Obsolete
10-1Fh	Obsolete
80h	The device complies to ISO/IEC 9316:1995
81h	Obsolete
82h	The device complies to ISO/IEC 9316:1995 and to ANSI X3.131-1994 (SCSI-2)
83h	The device complies to ISO/IEC 9316:1995 and to ANSI X3.301-1997. (SPC)
84h	The device complies to ISO/IEC 9316:1995 and to this standard.
85-87h	Reserved
88-8Fh	Obsolete
90-97h	Reserved
98-9Fh	Obsolete
A0-A7h	Reserved
A8-Afh	Obsolete
B0-B7h	Reserved
B8-BFh	Obsolete
C0-C7h	Reserved
C8-CFh	Obsolete
D0-D7h	Reserved
D8-DFh	Obsolete
E0-E7h	Reserved
E8-EFh	Obsolete
F0-F7h	Reserved
F8-FFh	Obsolete

7.4.4 Command support data

Same change as above.

New Stuff

Bytes 56 through 95: ASCII Version Information

If all bytes are not 00h, the device provides ASCII Version information. If implemented, the ASCII Version Information shall pertain to which version of standards the device supports. It is recommended that the ASCII information should be left justified and separated by a carriage return between each standard described. A standard should be described by its acronym omitting any hyphen followed without spaces by "R" plus the revision number (e.g., "SPC2R07<CR>"). This allows up to five standards to be described. It is also recommended that the first group be used for the physical standard, followed by the physical/mapping protocol if any, followed by the appropriate SPC version, followed by the device type command set, followed by a secondary command set if any. Bytes 56 through 95 which are not required to provide version information should be filled with ASCII spaces.