Action Requested

TO: Members, X3 -- For Balloting
Members, SPARC
Officers of X3/TCs, SCs and SPARC SGs

SUBJECT: Transmittal of X3LB 1629
Approval of the incorporation of the attached editorial changes into the first publication of X3.170-1990, Enhanced Small Device Interface (ESDI).

X3T9 has approved the attached editorial changes for inclusion in X3.170-1990, Enhanced Small Device Interface (ESDI). The standard was approved in November, 1989, and is in the final editing stages prior to its first publication.

Due to recent ANSI policies, we are requiring the technical committee and X3 to approve such changes to an approved standard. These policies and the resultant procedures are discussed in X3/90-2529.

X3T9 has approved the editorial changes by a vote of 19-0.

Please review the attached documentation and return your letter ballot by NOON, November 29, 1990.

Yours truly,

[Signature]

Joanne M. Flanagan
Secretary, X3

Enclosures: X3LB 1629 (P's and A's only)
Attachment
September 5, 1990

Mr. Jean-Paul Emard
CBEMA
311 First Street, NW
Suite 500
Washington, DC 20001

Dear Jean-Paul:

This is with regard to editorial changes to dpANS X3.170-1990, Enhanced Small Device Interface (ESDI). The changes involve the deletion of Table 28 and the revision of section 7.12. A copy of a letter to Harvey Rosenfeld is attached that explains these changes in more detail.

X3T9 reviewed these changes at their August 24, 1990 meeting and approved the following motion by a vote of 19 yes and 0 no.

"That X3T9 advise the X3 Secretariat that the ESDI editing changes to delete Table 28 and to revise section 7.12 are editorial and make no substantive changes to the document."

In addition, X3T9 has received a request from Magtron, Inc. (copy attached) to have their newly formed corporation added to the list of vendors in Table 22 located on page 48. X3T9 request that Magtron be assigned the code number 22.

Thank you for your consideration in this matter.

Sincerely,

[Signature]
Del Shoemaker
Chair, X3T9
July 17, 1990

Mr. Harvey Rosenfeld
ANSI
1430 Broadway
New York, NY 10018

Subject: ESDI (BSR X3.170) Editorial Changes

Dear Harvey,

I have reviewed the effect of deleting Table 28 and adding the second paragraph to Section 7.12 with Larry Lamers. (I was unable to reach Dal Allan today as he is out of the office.) I believe these changes are purely editorial clarifications and make no technical changes. The rationale for these changes is as follows:

In section 7.12 the former table (Table 28: Diagnostic Parameter Bits) has been deleted and the remaining tables in the document renumbered. The document now contains one less table than prior revisions.

This table was deemed to be redundant with Figure 17 in section 7.1 after the terminology in section 7.12 was clarified. In the prior revision, paragraph 4 of 7.12 referred to a "diagnostic parameter" (shown as bits 7-0 of the Command Data Word in the old Table 28). This term was confusing in that "Command Subscript" is used elsewhere in the document for bits 7-0 of the Command Data Word as defined in Figure 17. This change brings the terminology used in paragraph 3, "Command Modifier", and in paragraph 4, "Command Subscript", into agreement with the terminology defined in Figure 17. Hence Table 28 was no longer needed.

The second paragraph of section 7.12 was added. This paragraph was formed from the last sentence of paragraph 1 of the prior revision and a clarification on how the status of the Initiate Diagnostics is returned. This is the same procedure used for other commands, however re-stating the procedure here is beneficial to readers of the document.

Thank you for your diligence pointing out a potential problem.

Sincerely,

John Lohmeyer, Chairman X3T9.2

cc: Dal Allan, ESDI Technical Editor  (FAX: 408-867-2113)  
Lawrence Lamers, X3T9.2 Secretary  (FAX: 408-434-5469)  
Del Shoemaker, X3T9 Chairman  (FAX: 202-383-5024)
Function shall ignore this command.

Drives that implement less than three values of offset shall respond to unimplemented offset commands as a legal offset function.

Seek or recalibrate commands restore offsets to zero. Simultaneous Data Strobe Offset, Track Offset, and Laser Power Adjust (optical only) are allowed by use of multiple commands.

<table>
<thead>
<tr>
<th>Command Modifier Bits 11-6</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 0 0 x</td>
<td>Restore Offset to Zero</td>
</tr>
<tr>
<td>0 0 1 0</td>
<td>Positive Offset One</td>
</tr>
<tr>
<td>0 0 1 1</td>
<td>Negative Offset One</td>
</tr>
<tr>
<td>0 1 0 0</td>
<td>Positive Offset Two</td>
</tr>
<tr>
<td>0 1 0 1</td>
<td>Negative Offset Two</td>
</tr>
<tr>
<td>0 1 1 0</td>
<td>Positive Offset Three</td>
</tr>
<tr>
<td>0 1 1 1</td>
<td>Negative Offset Three</td>
</tr>
<tr>
<td>1 xx x</td>
<td>Reserved = 0</td>
</tr>
</tbody>
</table>

7.12 Initiate Diagnostics (1006) (D-0)

This optional command causes the drive to perform internal diagnostics. COMMAND COMPLETE indicates the completion of the diagnostics. ATTENTION with COMMAND COMPLETE indicates that a fault was encountered and status should be requested to determine the proper course of action.

The Command Modifier shall be zero to perform standard diagnostics.

Alternatively, these bits may be used by the device to invoke alternate vendor diagnostics. See Table 28.

The alternate diagnostic routines shall be initiated in order beginning with x'01', and command reject issued when any unimplemented routines are requested. If the alternate diagnostics are not supported by the device, then the Command Modifier bits may be ignored.

The diagnostic parameter bits may be used to modify the routine per vendor specifications, but all routines shall execute when a default value of zero is present.

<table>
<thead>
<tr>
<th>Diagnostic Parameter Bits</th>
<th>Diagnostic No</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 P</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Enhanced Small Device Interface EDS 10223
7.13.2 Optical (Data Recovery Offset). This optional command shall cause the drive to offset the data strobe in the direction and amount specified by the Command Modifier. See Table 26. Laser Power Adjust (Positive or Negative) shall cause the laser reading power to be changed from nominal power in either the positive or negative direction.

7.11 Track Offset (0111) (D-0). This optional command shall cause the drive to perform a track offset in the direction and amount specified by the Command Modifier as shown below in Table 27.

Disks which can offset their track position to recover data shall interpret the modifiers in a drive-specific manner. Disks which cannot provide the function shall ignore this command.

Drives that implement less than three values of offset shall respond to unimplemented offset commands as a legal offset function.

Seek or recalibrate commands restore offsets to zero. Simultaneous Data Strobe Offset, Track Offset, and Laser Power Adjust (optional only) are allowed by use of multiple commands.

Table 27

<table>
<thead>
<tr>
<th>Command Modifier Bits 11-8</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 0 0 x</td>
<td>Restore Offset to Zero</td>
</tr>
<tr>
<td>0 0 1 0</td>
<td>Positive Offset One</td>
</tr>
<tr>
<td>0 0 1 1</td>
<td>Negative Offset One</td>
</tr>
<tr>
<td>0 1 0 0</td>
<td>Positive Offset Two</td>
</tr>
<tr>
<td>0 1 0 1</td>
<td>Negative Offset Two</td>
</tr>
<tr>
<td>0 1 1 0</td>
<td>Positive Offset Three</td>
</tr>
<tr>
<td>0 1 1 1</td>
<td>Negative Offset Three</td>
</tr>
<tr>
<td>1 xx x</td>
<td>reserved = 0</td>
</tr>
</tbody>
</table>

7.13.3 Set Unformatted Bytes/Track (0001)(D-0) (Optional). This optional command shall cause the drive to set the number of unformatted bytes per sector indicated in bits 11,0 (if implemented), plus the high-order 4 bits set by the Set High-Order Value command (if implemented). This command is valid only if the drive is configured to be in the hard-sector mode. This command is used only if the drive uses a suitable counter for the number of bytes per sector and that counter is controllable from the interface.

The unformatted bytes per sector may be adjusted by the drive to meet the drive's requirements. If adjusted, the drive should attempt to retain the number of sectors per track desired by the controller (unformatted bytes per track divided by controller-requested unformatted bytes per sector) but may set a different number if format restrictions on the drive require this.

After setting a new value for Unformatted Bytes per Sector, the controller shall re-quest the Unformatted Bytes per Sector and Set High Order Track Configuration Response to verify that the drive is set to the expected value.

7.14 Set High-Order Value (1110) (D-0) (Optional). This optional command shall be issued to set the high-order 4 bits of commands which may be limited by the 13-bit address that can be defined in a single command. This command does not initiate any head movement. A subsequent Seek Address (0000) command is needed.
August 22, 1990

Mr. Del Shoemaker  
Digital Equipment  
1331 Pennsylvania Ave. #600  
Washington, DC 20004  
U.S.A.

Dear Mr. Shoemaker,

Magtron is currently manufacturing ESDI drives. I am interested in getting an ESDI vendor identification code for Magtron.

Magtron, was founded in Oct. 1988, a Taiwan based company. Pacific Magtron, U.S. Branch Office of Magtron, is located in sunnyvale, Calif. Our current products, brochure enclosed, are originally licensed from CAST and made numerous changes on the drive. We assemble drive here in Taiwan & put on our marks on the drive too. We also designed new drives which still under development.

Please send me the appropriate application form for ESDI vendor ID code. I’ll appreciate for your fast response.

Sincerely yours,

Felix Sheu  
Director  
Research & Develop Dept.  
Magtron Inc.

Enclosure
Bigger Drives For Bigger Jobs.

The MagTron MT-4100 Series

The MagTron MT-4100 Series represents the finely tuned technology of Winchester disk drives. The new MagTron MT-4100 Series is the best solution for those "big job" needs—offering formatted storage capacities of 155 140 and 170 megabytes. The combination of high capacity, low power consumption and fast access time makes the MT-4100 Series the best solution for those "big job" needs—offering formatted storage capacities of 155 140 and 170 megabytes. MagTron's new MT-4100 Series extends the horizon on reliable hard disk drive manufacturing, creating new standards for economy and dependability.

LAN servers and multi-user/multi-tasking applications—that play such an important role in today's increasingly sophisticated business philosophies—directly benefit from the unique combination of low cost and high reliability through a variety of electronics have been incorporated onto a single printed circuit board by utilizing a 54W complemen...