TEXAS INSTRUMENTS

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MEMORANDUM

11 Jun 1989

TO: John Lohmeyer, Chairman X3T9.2

FROM: Bill Spence, Texas Instruments

SUBJECT: Practical Proposal Re SDTR Responsibility

We consider that this proposal is of immediate usefulness to everyone who writes SCSI host code and so offer it for immediate distribution. Since it does not have to be in the Standard for us to implement it, we have no personal concern about whether it is considered for SCSI-2.

X3.131 places even-handed responsibility on all synchronous-capable SCSI devices to initiate an exchange of SDTR messages before a data transfer, if no synchronous agreement is already in effect for the nexus involved. SCSI-2 goes even further in explicitly requiring that peripherals which have been independently power cycled initiate an exchange of SDTR messages before their first data transfer.

Despite this, many--probably most--synchronous-capable SCSI peripherals do NOT initiate an exchange of SDTR messages under any circumstances, and this condition is likely to continue for some time. Reason: many host adapters cannot handle an SDTR message exchange initiated by a peripheral. Even peripherals which CAN assume responsibility for their synchronous agreement may not do so, depending on how they have been set up with control code or control switches, physical or software. This degree of uncertainty has caused us aggravation and expense both in laboratory evaluation and in the field. (The customer power-cycles a peripheral, then gets a system crash, then places a service call.)

The deep thinkers hereabout have applied themselves to this problem and have come up with the following: The first data transfer a peripheral will make after a power cycle will result from either a REQUEST SENSE or an INQUIRY command. Any other command will elicit CHECK status with no data transfer. (Any host that does not respond to a CHECK status with a REQUEST SENSE command deserves everything that happens to it.) Hence we propose, in our host code, to negotiate a new synchronous agreement when issuing each REQUEST SENSE and each INQUIRY command. The performance hit appears to be negligible. We will not not issue an SDTR message, however, to any peripheral with which we have been unable to establish a previous synchronous agreement.

PROPOSAL--If the members consider this concept worth manifesting in the standard, we offer the following. Insert after the existing NOTE at the end of .5.2, p 5-8 of SCSI-2 Rev 9:

NOTE: Host adapters may protect themselves from loss of data transfer ability (caused by an independent power cycle of a peripheral) by negotiating a new synchronous agreement with each REQUEST SENSE and each INQUIRY command.