TEXAS INSTRUMENTS

X3T9.2/87-109

D.W. (Bill) Spence
Project Engineer
Advanced Systems Division
Data Systems Group

P.O. Box 2909 • MS 2091 • Austin, Texas 78769 • 512 250-6627

MEMORANDUM

09 ~~JUN~~ JUL 1987

TO: John Lohmeyer, Chairman X3T9.2

COPIES: Dal Allan, Bill Homans, Jim Semenak, Gary Stephens

FROM: Bill Spence, Texas Instruments

SUBJECT: ADDITIONAL CONCERNS RE IMMEDIATE-BIT OPERATIONS

The following is considered to be completely separate from the material of X3T9.2/87-88, which I believe was adopted at Vancouver with only the substitution of the word "validated" for the word "received".

Bill Homans of the Valley Forge division of some company has pointed out a hole in our treatment of the Immed bit in the ERASE command. Assuming that the current wording of the ERASE command requires the Immed bit to cause status return only after the erase operation has been initiated, this action is inapropriate in the case of a short erase, which in 1/2" is routinely inserted in a streaming sequence of WRITE commands to facilitate future update operations. In such case, status from the ERASE command should be returned as soon as the CDB has been validated. (See Proposal 1 attached.)

Gary Stephens of IBM Tucson says that his recollection from the Chicago meeting of June 86 is that the meaning of the Immed bit in the "slow" tape commands--REWIND, ERASE, LOAD/UNLOAD, LOCATE--was deliberately left ambiguous. I wasn't at Chicago, but I believe that I have been at every plenary and working group from July 86 to the present. I am strongly of the belief that at more than one such meeting, the group has affirmed that in the "slow" commands the status return should be delayed until all previous commands (major concern: streamed write or read commands) have completed all their data transfer operations (to/from tape and to/from host) and have set any resulting status in appropriate registers. This prevents a data error in a preceding command from being delayed in report until after the "slow" command has completed, and it also permits recovery action while the tape is still in the same general position.

As I understand Gary, he accepts this definition of the meaning of the Immed bit in the "slow" commands, but both he and Bill Homans question whether the present wording is adequate. Since I have made a career concentration on the Immed bit lately, I agreed to submit wording which is intended to clear up all the problems alluded to above, as presented on the attached page.

I do not guarantee that these proposals are non-controversial.

PROPOSALS:

1. In Scn 9.1.13. ERASE Command, p. 9-40, replace the second paragraph with the following:

" An immediate bit (Immed) set to zero, regardless of the setting of the Long bit, indicates that the target shall not return status until the erase operation has completed. An Immed bit set to one with the Long bit set to zero indicates that the target shall return status as soon as the Command Descriptor Block has been validated. An Immed bit set to one with the Long bit set to one indicates that the target shall return status as soon as the execution of all previous commands has been completed and the Command Descriptor Block of the ERASE command has been validated. If CHECK CONDITION status is returned in an ERASE command with the Immed bit and the Long bit both set to one, the erase operation shall not be performed."

2. In Scn 9.1.1. REWIND Command, p. 9-2, replace the second paragraph with the following:

" An immediate bit (Immed) set to zero indicates that the target shall not return status until the rewind operation has completed. An Immed bit set to one indicates that the target shall return status as soon as the execution of all previous commands has been completed and the Command Descriptor Block of the REWIND command has been validated. If CHECK CONDIION status is returned in a REWIND command with the Immed bit set to one, the rewind operation shall not be performed."

3. In Scn 9.1.15. LOAD/UNLOAD Command, p. 9-48, replace the second paragraph with the following:

" An immediate bit (Immed) set to zero indicates that the target shall not return status until the LOAD/UNLOAD operation has completed. An Immed bit set to one indicates that the target shall return status as soon as the execution of all previous commands has been completed and the Command Descriptor Block of the LOAD/UNLOAD command has been validated. If CHECK CONDIION status is returned in a LOAD/UNLOAD command with the Immed bit set to one, the load/unload operation shall not be performed."

4. In Scn 9.2.1. LOCATE Command, p. 9-53, replace the fifth paragraph with the following:

" An immediate bit (Immed) set to zero indicates that the target shall not return status until the locate operation has completed. An Immed bit set to one indicates that the target shall return status as soon as the execution of all previous commands has been completed and the Command Descriptor Block of the LOCATE command has been validated. If CHECK CONDIION status is returned in a LOCATE command with the Immed bit set to one, the locate operation shall not be performed."