

TEXAS  
INSTRUMENTS



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MEMORANDUM

26 Jun 1987

To: John Lohmeyer, Chairman, X3T9.2  
From: Bill Spence, Texas Instruments, Austin  
Subject: Fourth pass at Download, etc., Command

At the X3T9.2 Plenary Meeting in Vancouver, 22-23 June, we discussed the micro-code download protocol in the context of document no 87-7 Rev 2. The concensus achieved, as I understood it, was that the proposals of page 2, modified as per discussions at the meeting, and those proposals only, were agreed upon.

For the record, then, here is a cleaned-up version.

PROPOSALS:

In Scn. 7.2.3, WRITE BUFFER Command (p. 7-31), in byte 1 of the CDB, expand the mode field to comprise 3 bits, 0-2.

In Scn. 7.2.3, WRITE BUFFER Command (p. 7-31), replace the first two paragraphs and the table below the CDB with the following:

" The WRITE BUFFER command (Table 7-) is used in conjunction with the READ BUFFER command as a diagnostic function for testing target memory and the SCSI bus integrity. When used in a diagnostic mode, this command shall not alter any medium of the target. Additional modes are provided for downloading executable microcode and for downloading and saving executable microcode.

The function of this command and the meaning of the fields within the command descriptor block depend on the contents of the mode field. The mode field is defined as follows:

DB(2)	DB(1)	DB(0)	Mode	Implementation Requirements
0	0	0	Write combined header and data	Optional
0	0	1	Vendor unique	Vendor unique
0	1	0	Write data	Optional
0	1	1	Reserved	Reserved
1	0	0	Download microcode	Optional
1	0	1	Download microcode and save	Optional
1	1	0	Reserved	Reserved
1	1	1	Reserved	Reserved

In Scn. 7.2.3, WRITE BUFFER Command (pp. 7-31 & 7-32), make global replacements as follows: Replace 00b by 000b, 01b by 001b, 10b by 010b, and 11b by 011b.

In Scn. 7.2.3, WRITE BUFFER Command (p. 7-32), append the following material at the end of the present text:

7.2.3.5. Download Microcode Mode (100b)

In this mode, vendor-unique executable microcode and/or control information shall be transferred to the control memory space of the target. After a power cycle or reset, the device operation shall revert to a vendor-unique condition. The meanings of the buffer ID, buffer offset, and transfer length fields are not specified by this standard and are not required to be zero-filled.

7.2.3.6. Download Microcode and Save Mode (101b)

This mode may be specified only in a command with the Link bit not set. If this mode is specified in a command with the Link bit set, the target shall return CHECK CONDITION status and shall set the sense key to ILLEGAL REQUEST. In this mode, vendor-unique executable microcode and/or control information shall be transferred to the control memory space of the target and, if the download is completed successfully, also shall be saved in a non-volatile memory space (semiconductor, disk, or other). The downloaded code shall then be effective after each power cycle and reset until it is supplanted in another Download Microcode and Save operation. The meanings of the buffer ID, buffer offset, and transfer length fields are not specified by this standard and are not required to be zero-filled.

7.2.3.7 Reserved Mode (110b and 111b)

This mode is reserved for future standardization."