**To:** **T10 Membership**
**From:** **Lawrence J. Lamers (ljlamers@ieee.org)**
**Subject:** **Echo mode for READ/WRITE BUFFER**
**Date:** **Tuesday, March 09, 1999**

This proposal extends the mode field for READ/WRITE BUFFER commands to add an echo buffer mode to the implied physical buffer modes.  The echo buffer mode allows the use of READ/WRITER buffer commands during normal I/O operations; the existing commands imply the use of physical buffers that might corrupt user data during normal I/O operations.

The existing mode field in the READ BUFFER and WRITE BUFFER commands is increased to four bits.  The value 1010b is defned as the echo buffer mode; the value 1011b is defined as echo buffer descriptor mode.  The remaining new mode values are reserved.

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The following parapgraph is added to the READ BUFFER command:

### Read Data from echo buffer (1010b)

In this mode the target transfers data to the initiator from the echo buffer.  The echo buffer shall transfer the same data as when the WRITE BUFFER command with the mode field set to echo buffer was issued.  The Buffer ID and Buffer Offset fields are ignored in this mode.

> NOTE: A WRITE BUFFER command with the mode field set to echo buffer should be sent prior to the READ BUFFER command; otherwise the READ BUFFER command may terminate with CHECK CONDITION: ILLEGAL REQUEST or may return indeterminate data.

The READ BUFFER command shall return the same number of bytes of data as receivedin the prior WRITE BUFFER command.

### Echo buffer descriptor mode (1011b)

In this mode, a maximum of four bytes of READ BUFFER descriptor information is returned. The target shall return the descriptor information for the echo buffer. If there is no echo buffer implemented, the target shall return all zeros in the READ BUFFER descriptor. The buffer offset field is reserved in this mode. The allocation length should be set to four or greater. The target shall transfer the lesser of the allocation length or four bytes of READ BUFFER descriptor. The READ BUFFER descriptor is defined as shown in table 4.

**Echo Buffer descriptor**

| Bit<br>Byte | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|
| 0 | Reserved | | | | | | | |
| 1 | Reserved | | | | | | | |
| 2 | Reserved | | | | | | | |
| 3 | Buffer Capacity | | | | | | | |

The buffer capacity field shall return the size of the echo buffer in bytes aligned to a four-byte boundary.

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The following paragraph is added to the WRITE BUFFER command:

### Write data to echo buffer (1010b)

In this mode the target transfers data from the initiator and stores it in an echo buffer.  An echo buffer is assigned in the same manner by the target as it would for a write operation. Data shall be sent aligned on four-byte boundaries.  The Buffer ID and Buffer Offset fields are ignored in this mode.

Upon successful completion of a WRITE BUFFER command the data shall be preserved in the echo buffer unless there is an intervening command to any logical unit in which case it may be changed.