Date: Aug 30, 2000

To: T10 Committee (SCSI)

From: George Penokie (IBM)

Subject: SPI-4 IU Handling Clean-up

1 Overview

Some conflicting or unclear statements were pointed out in SPI-4 rev 0. This proposal address those issues.

2 Data information unit retries

Sections 10.8.3.3.3 (DT DATA IN phase information unit transfer exception condition handling) and 10.8.3.3.4 (DT DATA IN phase information unit transfer exception condition handling) do not allow a target to do retries on failed SPI data information units. However, section 14.1 (SPI information unit overview) states:

'When a data transfer agreement is in effect that enables information unit transfers there is no option equivalent to the "physical disconnect without sending a SAVE DATA POINTER message". The initiator shall save the data pointers as soon as the last byte of the last iuCRC for a SPI information unit is transferred. The save shall occur even if the initiator detects an error in the SPI data information unit. If a target retries an operation it shall send a MODIFY DATA POINTERS message then request that the SPI data information unit be transferred again.'

The last sentence is not correct and should be removed as it conflicts with 10.8.3.3.3 and 10.8.3.3.4. The reason the exception condition section was written the way it was, was to removed target retries on information unit transfers. For backward compatibility reasons we cannot change the retry option on data group transfers but that is not an issue in packetized. So we made it simpler and removed (except for the conflict) the retry option in packetized. The paragraph in 14.1 should be changed to read as follows:

'When a data transfer agreement is in effect that enables information unit transfers there is no option equivalent to the "physical disconnect without sending a SAVE DATA POINTER message". The initiator shall save the data pointers as soon as the last byte of the last iuCRC for a SPI information unit is transferred. The save shall occur even if the initiator detects an error in the SPI data information unit.'

3 Offset synchronization between information units

There is a conflict between section 10.8.3.3.2 (Information unit transfer) and sections 14.1 (SPI information unit overview) and 14.3.4 (SPI data stream information unit). Section 10.8.3.3.2 prohibits one information unit from being transferred until the number ACKs and REQs are equal. The other two section allow the ACKs and REQs to not be equal between streamed information units. To fix this the following sentence should be removed from section 10.8.3.3.2:

2) shall not transition the REQ signal for the current SPI information unit until the initiator has responded with all ACK transitions for the previous SPI information unit.

4 Streaming error handling error

In section 10.8.3.3.4 (DT DATA IN phase information unit transfer exception condition handling) the following sentence occurs:

'If the nexus has been fully identified (i.e., an I_T_L_Q nexus has been established) and the target detects

an iuCRC error in any SPI information unit it receives while in the DT DATA OUT phase the target shall, before receiving another SPI L_Q information unit, switch to a DT DATA IN phase and send a SPI L_Q/SPI status information unit pair to the initiator with a CHECK CONDITION status and a sense key set to ABORTED COMMAND and the additional sense code set to iuCRC ERROR DETECTED for the task associated with the iuCRC error.'

The statement 'before receiving another SPI L_Q information unit' is no longer correct because write streaming allows consecutive data information units to occur without a L_Q information unit before each data information unit. As a result the statement should be changed to read 'before receiving another information unit'.