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To: Members of X3T10

Subject: X3T10/96-XXXR1 -- SCSI-2 Questions

Discussion

I have been asked to submit the following questions and comments to the committee. Each of these has come up during device qualification and represents areas of undefined behavior or disagreements in the interpretation of the standard.

The citations are with reference to version 10h of the SCSI-2 draft standard.

1. Queue Tag Message Type when Issuing an ABORT TAG

When generating the nexus associated with an ABORT TAG, what type of queue tag message is required? Should this message agree with the attribute of the task to be aborted or should the SIMPLE QUEUE TAG message be used in all cases (as it is during a reconnection)? For example, if the task had the HEAD OF QUEUE attribute, must the HEAD OF QUEUE TAG message be used to generate the nexus for the ABORT TAG?

If a specific message type is required, what action should be taken by the target if an incorrect type is used?

2. Reselection Time-out Recovery

Subclause 5.1.4.2 specifies two possible ways for a target to recover from a reselection time-out:

- a) Issue a hard reset or,
- b) Disconnect from the bus by:
 - 1. Releasing all DATA signals while continuing to assert IO and SEL.,
 - 2. Wait 200us (the selection abort time) plus two deskew delays (90ns),
 - 3. If BSY is not detected during the above interval, release SEL and IO.

Questions:

Since the standard states that both methods are optional, some devices don't implement either. Is that the intended behavior?

If a target uses alternative b, how should it respond if BSY is detected during the 200us delay?

3. Interaction Between Wide and Synchronous Negotiations

In testing products from a number of host vendors, we have observed the problem described below in which the initiator becomes unaware that the synchronous agreement has been voided.

According to subclause 5.6.23 "If a synchronous data transfer agreement is in effect, then an SCSI device that accepts a WDTR message shall reset the synchronous agreement to asynchronous mode".

The problem is that many initiators consider "acceptance" to be synonymous with "agreement", whereas targets consider "acceptance" to mean the act of successfully transferring the WDTR message bytes. If such targets do not support wide mode, they may terminate negotiation by issuing MESSAGE REJECT after reverting to asynchronous data transfer mode. Since initiators do not consider a MESSAGE REJECT response to be an acceptance, they believe the previously negotiated synchronous transfer parameters are still in effect.

Note that targets not recognizing WDTR also respond with MESSAGE REJECT but do not revert to asynchronous data transfer mode.

We suggest modifying SIP to clarify the meaning of "acceptance" and to recommend that a target which recognizes WDTR but does not run in wide mode should complete negotiation by issuing a WDTR response with a value of 0 for transfer width.