Date: Aug 04, 1999

To: T10 Committee (SCSI)

From: George Penokie (IBM)

Subject: Task Mangement Handling changes for SPI-3

1 Overview

The description of the targets response to task management functions received in SPI command information units it not clear in SPI-3. This proposal list some changes to SPI-3 rev 9 that would describe the target's response.

1.0.1 SPI command information unit

The SPI command information unit (see table 35) transfers CDBs, task attributes, and task management requests to be performed by a device server.

An initiator shall consider a BUS FREE phase after the transfer of a SPI command information unit to be equivalent to receiving a DISCONNECT message.

If a target does not have the resources to accept a SPI command information unit and the TASK MANAGEMENT FLAGS field equals 00h the target shall transfer all the bytes of the current SPI command information unit but need not hold the transmitted information. After transferring all the SPI command information unit bytes the target shall change to a DT DATA IN phase and transmit a SPI status information unit with the status of TASK SET FULL. If the initiator has more commands to send to the target it shall wait for the next selection before those remaining commands may be sent.

If the TASK MANAGEMENT FLAGS field is a supported value not equal 00h the target shall perform the selected task management function before accepting any further SPI information units. On completion of a supported task management function the target shall go to a BUS FREE phase. No status shall be reported for the task management function. If the TASK MANAGEMENT FLAGS field is not a supported value then the task manager shall terminate the task with a GOOD status and the packetized failure code shall be set to task management function not supported.

If the target terminates a SPI L_Q/SPI command information unit pair it shall have no effect on any other SPI L_Q/SPI command information unit pair beyond those caused by any task management functions contained within the last SPI L_Q/SPI command information unit pair.

1.0.2 Unexpected and expected bus free

An unexpected bus free occurs when an initiator detects a BUS FREE phase that is not expected. Initiators shall expect a BUS FREE phase to occur after one of the following occurs:

a) after a hard reset is detected;
b) after an ABORT TASK ~~message~~ task mangement function is successfully received by a target;
c) after an ABORT TASK SET ~~message~~ task mangement function is successfully received by a target;
d) after a CLEAR TASK SET ~~message~~ task mangement function is successfully received by a target;
e) after a LOGICAL UNIT RESET ~~message~~ task mangement function is successfully received by a target;
f) after a TARGET RESET ~~message~~ task mangement function is successfully received by a target;
g) after a CLEAR ACA task mangement function is successfully received by a target;
h) after a DISCONNECT message is successfully transmitted from a target;
i) after a TASK COMPLETE message is successfully transmitted from a target;

j) after the release of the SEL signal after a SELECTION or RESELECTION phase time-out;
k) after a transceiver mode change:
l) after a PPR negotiation in response to a selection using attention condition when information unit transfers are enabled: or
m) after a PPR negotiation causes information unit transfers to be enabled or disabled.

Initiators may expect a bus free to occur after one of the following:

a) after the last SPI command information unit is successfully received by a target;
b) after a SPI data information unit is successfully received by or transmitted from a target;
c) after a SPI status information unit is successfully transmitted from a target;
d) after a SPI L_Q information unit if the SPI L_Q information unit DATA LENGTH field is zero; or
e) during a QAS phase.

The target uses an unexpected bus free to inform the initiator of a protocol error. The target may switch to a BUS FREE phase at any time, except during an ARBITRATION phase, independent of any attention condition.

The target shall terminate the task that was the current task before the BUS FREE phase by clearing all data and status for that task. The target may optionally prepare sense data that may be retrieved by a REQUEST SENSE command. However, an unexpected bus free shall not create an exception condition.

The initiator shall terminate the task that was the current task before the BUS FREE phase occurred and shall manage this condition as an exception condition.

1.0.3 CLEAR ACA

The CLEAR ACA message is defined in the SCSI Architecture Model-2 Standard.

On receipt of a CLEAR ACA message the task manager, in addition to clearing the ACA condition, shall ~~continue processing the current task.~~ go to the BUS FREE phase following the successful receipt of the ABORT TASK SET message.

It is not an error to issue a CLEAR ACA message when no ACA condition is in effect.