

To: T10 Technical Committee
From: Bob Sheffield (Robert.L.Sheffield@intel.com)
Date: 21 January 2006
Subject: 06-083r0 SAS2: Handle STP CLOSE and SATA_X_RDY crossing on the wire

Revision history

Revision 0 (17 January 2006) First revision

Related documents

SAS-2-r02 - Serial Attached SCSI - 2 (SAS-2) revision 02

Overview

It is not clear in the discussion of closing STP connections that an STP port originating CLOSE and receiving STP_X_RDY should not transmit STP_R_RDY and receive a FIS before the connection is closed by the other port after transmitting the FIS. This proposal clarifies the behavior of the STP port that receives a CLOSE after transmitting an STP_X_RDY, but before receiving an STP_R_RDY to make it clear no data is transferred before the connection is closed and reopened by the STP port that transmitted SATA_X_RDY.

Suggested changes

7.17.7 Closing an STP connection

Either STP port (i.e., either the STP initiator port or the STP target port) may originate closing an STP connection. An STP port shall not originate closing an STP connection after sending a SATA_X_RDY or SATA_R_RDY until after both sending and receiving SATA_SYNC. An STP port shall transmit CLOSE after receiving a CLOSE if it has not already transmitted CLOSE.

If an STP port receives a CLOSE after transmitting an STP_X_RDY, but before receiving an STP_R_RDY, the STP port:

- 1) shall transmit CLOSE;
- 2) shall transmit a new OPEN address frame to reopen the STP connection to the STP port that originated closing the connection;
- 3) upon reestablishing the connection (i.e., OPEN_ACCEPT received), shall retransmit SATA_X_RDY;
and
- 4) shall continue processing SATA protocol from the state that existed before the STP connection was closed.

When an STP initiator port closes an STP connection, it shall transmit a CLOSE (NORMAL) or CLOSE (CLEAR AFFILIATION). When an STP target port closes an STP connection, it shall transmit a CLOSE (NORMAL).

An STP initiator port may issue CLOSE (CLEAR AFFILIATION) in place of a CLOSE (NORMAL) to cause the STP target port to clear the affiliation (see 7.17.5) along with closing the connection. If an STP target port receives CLOSE (CLEAR AFFILIATION), the STP target port shall clear the affiliation for the STP initiator port that sent the CLOSE (CLEAR AFFILIATION).

See 7.12.6 for additional details on closing connections.

An STP/SATA bridge shall break an STP connection if its SATA host phy loses dword synchronization (see 7.12.7).