

At the April 22nd SPI-2 working group meeting, I presented foils with information about three cases that can result in release glitches. Shahe Krakirian's presentation on LVD glitch windows (96-160) contained a method of dealing with the first two cases of release glitches. This document describes two methods for dealing with the third case.

1. Normal Disconnects

Following a number of situations the target releases BSY and all other negated lines may have release glitches (including REQ and ACK):

- a) after a reset condition is detected;
- b) after an ABORT message is successfully received by a target;
- c) after a BUS DEVICE RESET message is successfully received by a target;
- d) after a DISCONNECT message is successfully transmitted from a target;
- e) after a COMMAND COMPLETE message is successfully transmitted from a target;
- f) after a RELEASE RECOVERY message is successfully received by a target;
- g) after an ABORT TAG message is successfully received by a target;
- h) after a CLEAR QUEUE message is successfully received by a target.

2. Unexpected Disconnect

Unexpected disconnects are catastrophic conditions. Targets use them to tell the initiator that something is so wrong that the entire I/O process is to be aborted. Following almost any state, the target may release all driven lines to go to BUS FREE phase. While this may briefly cause release glitches (for about one microsecond), the firmware should see the BUS FREE phase without one of the above situations and ignore the effect of the glitches.

In fact, firmware should ignore virtually everything that happened during the prior connection. New target designs (all LDV designs will be new) may be able to minimize the impact of this glitch by releasing BSY slightly ahead of releasing REQ (say 400 ns).

3. Selection and Reselection

During a selection or reselection phase, there is a point when the target or initiator, having put its ID and the other device's ID on the data bus, releases the data bus. At this point, all of the other ID's may glitch true. Since the other device has already latched the IDs and responded with BSY, it should cause no problems. There may however be a problem on a selection or reselection timeout procedure. The device driving the bus must either:

- a) negate the data bus during the abort procedure instead of releasing the data bus (or else other devices might see a false selection). or
- b) release the non-asserted ID bits throughout the selection or reselection phase so as to avoid the negated-to-released signal transitions on all data bus bits. “