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To: T10 Technical Committee  
From: Bill Galloway  
Subj: DiffSense Timing

I reviewing SPI-3 I have uncovered several problems with the DiffSense timing. The only times controlling a mode change on the bus are in section 7.2.5.2

**7.2.5.2 LVD DIFFSENS receiver**

....

A device shall not change its present signal driver or receiver mode based on the DIFFSENS voltage level unless a new mode is sensed continuously for at least 100 ms.

....

The bus is not operational until all devices (drivers and receivers) have switched modes. Currently there is no upper bound on the time that a device can take to switch modes. A limit of 300ms should be established as an upper bound.

**7.2.5.2 LVD DIFFSENS receiver**

Add new paragraph:

A device shall change to the new signal driver or receiver mode based on the DIFFSENS voltage level within 300ms of its last change.

There are no timing specifications for the multimode terminators at all. The terminators should comply with the same timing as the devices. The bus is not operational until all of the multimode terminators switch modes.

**7.3.1 LVD/MSE multimode termination**

Add two new paragraphs:

A multimode terminator shall not change its present termination mode based on the DIFFSENS voltage level unless a new mode is sensed continuously for at least 100 ms.

A multimode terminator shall change to the new termination mode based on the DIFFSENS voltage level within 300ms of its last change.

**PROPOSER NOTE:**

This does not require a silicon change; it can be done with a RC network.