From: Gibbons, Terry
Sent: Thursday, December 07, 2000 11:20 AM
To: ron_roberts@adaptec.com <mailto:ron_roberts@adaptec.com>
Cc: Lohmeyer, John; Denny, Steve
Subject: SDV Technical Report - Testing Methods

Ron,

During the latest SDV WG, it was suggested that we provide input to the SDV Technical Report (SDVR03) concerning Section 5: Testing Methods. Here is our preliminary input in no particular format.

Assumptions:
- Domain Validation, Basic/Enhanced, has already been executed and we have a "safe" setup.
- Margining is performed on Ultra320 devices only, presumably through Ultra320 expanders.
- Topology discovery has occurred and we are now ready to execute DV Margining on Ultra320 devices.

1. Test Order.
    a. Margin the path connecting the targets on the segment closest to the initiator, first.
    b. Continue to expand the Margin tests to the targets just beyond the first layer of expanders, i.e., those directly connected to the initiator. See Figure 5 and note the expanders connected to SCSI Bus Segment 0.
    c. Continue to expand the Margin tests to the targets beyond the second layer (and so on) of expanders, i.e, those directly connected to the first layer of expanders. See Figure 5 and note the expander between SCSI Bus Segment 1 and SCSI Bus Segment 4.

2. Test Conditions.
    a. Tests are segment based. When a segment has completed DV Margining, all I/O drivers, whether delivering data to or from a target or expander, are set to nominal. See Figure 5 and consider Target 5, Initiator, and the near port of all expanders connected to SCSI Bus Segment 0 as set to nominal when margining is complete on that segment.
    b. A segment has not completed testing until the lowest SCSI ID (Ultra320 device only) on the far side of all available expanders has been tested using nominal I/O driver conditions on the far port of the appropriate expander and the target under test. This will ensure that the signal reaching the near port, or coming from the near port, of any given expander is legitimate.

3. Test Combinations.
    a. Run margining tests to each target while manipulating only one parameter at a time. Execute margin tests at each "tick" of each parameter while holding all other parameters at nominal.
    b. Begin combinational testing. Due to the incredible amount of possible combinations, we recommend restraint. Run all combinations of parameters at all combinations of maximum and minimum settings. For instance, four parameters would generate sixteen tests. It is possible that maximum and minimum may be user defined to be something other than the full swing the hardware can apply.

4. Test Direction.
    a. All of the above must be ran through an outbound data path "TO" a particular target and inbound "FROM" a particular target. It is recommended that no simultaneous action of inbound and outbound margining exist.
    b. Use of mode pages will allow us to set multiple I/O driver parameters within the target.

Write or call for further info or I'll see you in January.

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