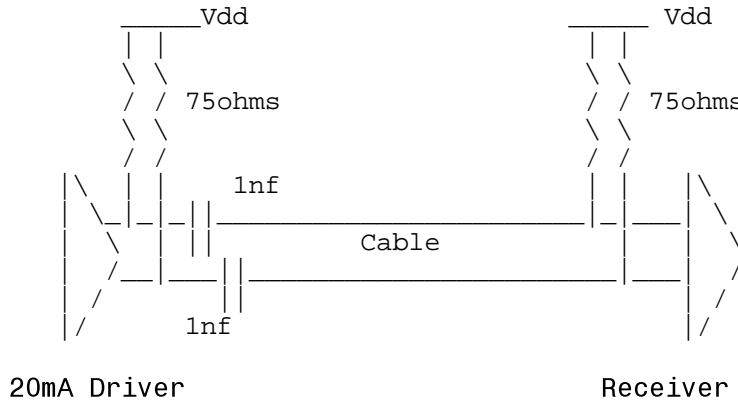


To: X3T10.1 Membership
 Subj: Termination schemes for PH2
 Date: 96-04-24 11:13:37 EDT
 From: pmurfet@vnet.ibm.com

X3T10.1/96a137r0

At the Winchester meeting IBM were asked to look at the relative merits of the various termination schemes available for SSA40, the results of this work will be presented at the Burlington meeting. The termination scheme that gave the best error rate is illustrated below.



IBM will be recommending the adoption of this scheme for SSA40. Below you will find some general comments on the scope of PH2 and PH1 followed by line by line alterations to PH2 required for the inclusion of the termination scheme shown.

The objective of publishing this prior to the meeting is to allow attendees time to consider all the implications and make best use of the working group sessions.

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There are three sets of conditions that ssa40 and ssa20 devices can operate under:-

1. SSA40 devices talking to SSA40 devices
2. SSA20 devices talking to SSA20 devices
3. SSA40 devices talking to SSA20 devices(at 20MB/s)

Condition 1 is covered by PH2.

Condition 2 is covered by PH1.

Condition 3 could be included in PH1 (stop public review!)

could be covered by a new spec PH1a

could be covered by PH2 in a special section

It should be remembered there are no technical problems here just ones related to how the specification be written.

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Changes to PH2 those marked with ** relate to condition 3 above.

section 1.1 SSA_PH2 characteristics

- a) change 20MB/s to 40MB/s (who has demonstrated at 40m?)
- d) change 40MB/s to 80MB/s and 20MB/s to 40MB/s

section 7 Electrical requirements.

Change 'directly coupled' to 'AC coupled'**

Table 2

Remove reference to directly coupled**

Figure 2

Add source termination resistors and AC coupling capacitors in driver

section 7.1.1 3rd Para 'is nominally 9.5mA' change to 19mA.

4th para 'The line Driver shall have sufficient compliance to accommodate ground-shift between the two ports' Remove this sentence.

Figure 4 change to show 19mA, source termination and AC coupling.

Figure 5 change y axis to -4.75mA, 0.0mA, +4.75mA**

section 7.1.3.3

Change a) e.g. to >6Ghz for 4v/ns

section 7.1.3.4

Check table 3 F1,F2, frequencies

section 7.1.4 table 4 Check 400MB/s T3, T5, T8

section 7.1.4 table 5 Check 400MB/s T4, T6, T7

section 7.1.4 Table 6 DC current = zero

2.0 v/ns change to 4 v/ns

section 7.2.5 and 7.2.6 single section about ground shift/noise???

section 7.2.7 Table 9

Common mode input level incorrectly defined as is defined relative to LINE + and - levels which themselves have not been defined. Should be replaced by INPUT RANGE

INPUT RANGE = VDD+-500mV **

The +/-5V dc to 30Mhz is a noise spec and should be referred to in 7.2.5/7.2.6

section 7.3 3rd paragraph two reference to dc to remove.

Table 10 750ps change to 375ps and single excursion allowed for 0.75ns

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Summary of what might be included in a special section to accommodate the case of SSA40 talking to SSA20

Special conditions for SSA40 receiver being driven from SSA20 driver. Input signal range needs to be VDD-500mv +-500mv.

Special conditions for SSA40 driver when driving SSA20 receiver. NONE.

Special conditions for SSA20 receiver being driven from SSA40 driver. Input signal range needs to be VDD +-500mv.

Special conditions for SSA20 driver when driving SSA40 receiver. NONE.

If a port is operating at 40MB/sec it must conform to PH2 and if a port is operating at 20MB/sec it must conform to PH1, with the following exceptions. If an SSA40 port is operating at 20MB/s then it may conform to PH1 or PH2 for slew rate or spectral content. If a port can only operate at 20MB/s it can be described as an SSA40 port operating at 20MB/s.