

X3T10/94-038r0
X3T9.2/93-149 Rev 3

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Date: 20-January-1994

Subj: Proposed changes to SPI

These proposed changes to SPI are derived from discussions of document X3T9.2/93-149 in the SCSI working group on November 10, 1993. Specific working is proposed for the identified sections of SPI.

1) Change 6.2 3rd paragraph:

The TERMPWR and TERMPWRQ lines should be decoupled at each terminator with a low frequency capacitor ($2.2 < C < 10.0 \mu\text{F}$) for devices not at the end of the cable, devices at the end of the bus ($2.2 < C < 50 \mu\text{F}$), and a high-frequency capacitor (nominally 0,01 microfarad).

Rational:

1. There needs to be a limit to the maximum capacitance that can appear on the termpwr line.
2. If the capacitor size is not limited it causes major glitches on the Termpwr line during hot plugging.

2) Change to Figure 9

Figure 9 Termination for differential devices.
Change Equal to or greater than 2.2 microfarads to ($2.2 < C < 5.0 \text{ Microfarads}$)

- 3) Changes to Annex G section G.4 (relating to device removal and insertion with current I/O processes allowed)

Add clauses (g) and (h) to read:

- g) The power cycling in (d) includes the power cycle to the term power line on the device being removed or inserted that naturally occurs.

Switchable terminators in disconnect mode (i.e. not being used as terminators) must not allow the high impedance state at the device connector to be disturbed during this intrinsic power cycle on the term power line.

- h) Changes in TERMPWR voltage caused by charging the capacitor on the TERMPWR line of the device being removed or inserted shall not be transmitted to the signal lines through the termination being used by the active bus.

Implementor's note: This specifically requires EITHER:

(1) that there be no capacitance greater than 25 picofarads on the term power line of the device -- passive terminators pass approximately 60% of the TERMPWR voltage to the signal lines OR

(2) that regulated terminators be used on the active bus --
Limiting the capacitance on the TERMPWR line of the device to 5.0 microfarads is sufficient to meet this requirement if alternative-2 active terminators as specified in SCSI-2 are used on the active bus

- 4) Changes to Section 7.2.2

Change b) to read:

b) Shall conform to EIA RS-485 (ISO 8482-1982 TIA TR30.2) except that the common mode voltage range shall be 0 to +5 volts DC and -7 to +12 volts for transients less than 100 mS instead of -7 to +12 volts.

Rational:

The common mode voltage requirements for EIA485 are not possible without destroying SCSI cables. (The 7 ground wires in differential SCSI limits the common mode to transients or low voltages.) In addition these limits may cause excessive

power dissipation in the bus termination.

More discussion when the one suggesting the change is in the meeting. Adding to section 7.1.1

f) The SCSI-2 220/330 terminator is not allowed for SPI applications