

To: X3T10 Membership
 From: Paul Aloisi
 Subject: FAST-20 Modified for SPI-2

Terminator Pull Up Current

		Nom	Nom.	R+	R-
•	SCSI-2	5% ref	0.5 V	0.2 V	0.2 V
•	2.85V	Nominal Reg	0.0214 A	0.0241 A	0.0265 A
•	110	Nominal Z	132 Ohms	0<70 degrees C	
•	2.9925 V		0.0227 A	0.0254 A	0.0279 A
•	2.7075 V		0.0201 A	0.0228 A	0.0251 A
•	2.7075 V	125C Junction	0.0179 A	0.0203 A	0.0224 A
•	2.5 V	Min 125C Junction	0.0162 A	0.0187 A	0.0205 A
•		Diffused resistors are 1200 PPM, specs are 0-70		Worst Case Resistors	
•		Junction temperature often reach 125 degrees C, 55 degrees higher			
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Proposed SPI-2 Terminator Specification

- | Voltage | Max | Min |
|---------|---------|------------------------------|
| 0.5V | 22.4 mA | 17.5 mA |
| 0.2V | 25.4 mA | 20 mA except on <0.3 M buses |
- Terminators must meet the 20 mA minimum with 12 lines asserted on a narrow bus, 20 lines asserted on a wide bus and 37 lines asserted on a 32 bit bus.
- Terminator maximum capacitance within a stub length of the last device or 12.5 pF for SE and 10-10-5 pF for LVD.

6.1.1 Single-ended termination

All SCSI bus signals are common among all devices connected to the bus. All signal lines shall be terminated at both ends with a terminator that is compatible with the type of transceivers used in the SCSI devices. The termination points define the ends of the bus. These termination points may be internal to an SCSI device.

All single-ended signals not defined as RESERVED, GROUND, or TERMPWR shall be terminated exactly once at each end of the bus. The termination of each signal shall meet these requirements:

- the terminators shall be powered (see section x);
- each terminator shall source current to the signal line whenever its signal line voltage is below 2,5 V d.c. and this current shall not exceed 25,4 mA for any line voltage above 0,2 V d.c. and 22,4 mA for any line voltage above 0,5 V d.c. even when all other signal lines are driven at any voltage up to 4,0 V d.c.;
- the terminator shall source at least 20 mA at 0,2 V d.c. and 17,5 mA at 0,5 V d.c. with 12 lines asserted to respective voltage for an 8 bit data bus, 20 lines asserted on a 16 bit data bus or 37 lines asserted on a 32 bit data bus. The exception is when the bus is shorter than 0.3 meters.
- the terminator shall not source current to the signal line whenever its signal line voltage is above 3,24 V d.c.;
- the voltage on all released signal lines shall be at least 2,5 V d.c.;
- these conditions shall be met with any legal configuration of targets and initiators as long as at least one device is supplying TERMPWR;
- the terminator at each end of the SCSI bus (see clause 5.1) shall add a maximum of 25 pF capacitance to each signal if the terminator is at least one stub length from the last device shall have a maximum capacitance of 25 pF and the terminator 12.5 pF if less than one stub length from the last device shall have a maximum capacitance of 37.5 pF. (see Figure X)
- the signal line termination small signal resistance shall be from 100 to 132 ohms. between 0,5 to 2,0 V d.c.

Terminators employing a 220 ohm resistor to 5 Volts and a 330 ohm resistor to ground on each signal shall not be used.

