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Thomas&Betts

To: SCSI Committee

From: Harvey Waltersdorf

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Subject: Cable Impedance

Thomas & Betts has recently joined with Stewart Connector in support of their daisy chainable internal connector. We believe it is the best answer to internal connections.

As a manufacturer of flat ribbon cable, T&B has tested the two row cable configuration and determined that with normal precautions the cable exhibits a characteristic impedance of 100 to 105 ohms. (See attachment)

Since the recent findings by Emulex indicate that consistent and high characteristic impedance is desirable, the SCSI-II document should include an implementors note that addresses this issue. The wording could be as follows:

"To maintain the specified characteristic impedance of the internal cabling system using parallel cables, these cables should be separated along their length by .050" minimum thick non-conductive spacers. Similar spacers should be used to prevent any single or double layer cable from coming in intimate contact with internal metal panels or the metal chassis."

These are normal precautions which are practiced by most companies experienced in computer interconnections.

There are two other approaches for maintaining high characteristic impedance of the transmission lines.

1. Only fold into a two layer configuration the cable where necessary for termination to the SCSI-II connectors and leave the longer cable runs as a single layer cable.

2. Use two layers of Twist & Flat cable where high speed and low intercable interference is required. Twisted pair significantly reduces crosstalk as well as "ground plane effect" between layers.