

June 23, 1994

To: John Lohmeyer
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From: Vit Novak

Subject: Proposed Implementor's note for FAST-20 SCSI Node Capacitance



Implementor's Note

The objective of this implementor's note is to determine whether the number of devices connected to the FAST-20 SCSI bus could be in some cases increased beyond the definition of the specification. The specification puts the maximum number of devices attached to the FAST-20 SCSI bus at eight with a maximum capacitance of 25 pF per node.

Devices with a careful board design using the latest silicon can lower the lumped capacitance considerably to 15 pF. Leaving out the optional terminator on a target can lower the node capacitance even more.

A decrease in lumped capacitance of the node and a uniform increase of the impedance along the whole SCSI bus toward 90 ohms improve the margin and could allow for a greater number of attached devices. Steps to improve a design according to their importance are node capacitance, spacing, cable impedance, and stub length. The recommended ratio of spacing to stub length is 3:1.

Backplane designs replacing the conventional cables give the implementor the possibility to increase the margin and connect a greater number of devices to the bus.

Slow devices should be grouped together and precede fast devices on the SCSI bus. Fast devices should be grouped together and placed at the end of the bus as close to the terminator as possible.

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