Alternate terminator cases

<table>
<thead>
<tr>
<th>Case</th>
<th>R1 (Ω)</th>
<th>R2 (Ω)</th>
<th>R3 - R20 (Ω)</th>
<th>Vout (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>110</td>
<td>127</td>
<td>100</td>
<td>2.85</td>
</tr>
<tr>
<td>3</td>
<td>121</td>
<td>154</td>
<td>110</td>
<td>2.85</td>
</tr>
</tbody>
</table>

Recommended

Proposed Single-Ended SCSI Bus Terminator

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Single-Ended SCSI Bus Noise Margins given reflections due to mismatch between termination impedance and bus impedance.

\[
\text{Vthreshold} := 2.0
\]

\[
\begin{align*}
Vn & := 2.85 & Zn & := 110 \\
Vs & := 2.60 & Zs & := 100 \\
\end{align*}
\]

\[Vp := \begin{bmatrix} 5.0 \\ 4.75 \\ 4.50 \\ 4.25 \\ 4.00 \end{bmatrix} \quad \text{Vto} := (0.6 \cdot \text{Vp})
\]

\[Z := 59 \ldots 121\]

\[
\text{Margin}(Vt,Zt,Zo) := \left[ Vt \left( 1.0 - \frac{|Zt - Zo|}{Zt + Zo} \right) \right] - \text{Vthreshold}
\]

\[i := 0 \ldots 4 \quad \text{Mo} := \text{Margin}[Vto,Zto,Z]_{i,Z} \]

\[\text{Mn} := \text{Margin}(Vn,Zn,Z) \quad \text{Ms} := \text{Margin}(Vs,Zs,Z) \]

SCSI Bus Noise Margin with Old (220/330) and New (X3T9.2/89-4r0) Termination. The upper 2 curves give the margins for the new scheme. The 2 new cases are (top to bottom) 110 ohms at 2.85 V, and 100 ohms at 2.60 V. The lower family of 5 curves plots the response of the 220/330 termination at 5 levels of TERMPWR as supplied to the terminator assembly. The range of TERMPWR input is from 5.0 V down to 4.0 V. Note that the standard recommends cables of 90 to 110 ohms characteristic impedance, however, many factors reduce the effective impedance. Among these are cable routing, the characteristics of SCSI bus devices and stub clusterring.