To: T10 Technical Committee  
From: Alvin Cox, Seagate Technology (alvin.cox@seagate.com) 
Date: 25 October 2006  
Subject: 06-464r0 SAS-2 COMWAKE detection requirements

Related document  
sas2r06 - Serial Attached SCSI - 2 (SAS-2) revision 6

Overview  
Serial ATA has changed the minimum detection time for COMWAKE from 55 ns to 35 ns. This was done after a detailed analysis of the detection circuitry implementations and factoring in signal asymmetry determined that the not detect and detect may have an overlap in the number of clock cycles to declare COMWAKE valid or not valid at the lower end of the range while the upper limit of 175 ns has sufficient timing margin.

This proposal updates the COMWAKE detection criteria to match the values adopted by SATA.

Suggested change:

6.6.3 Receiving OOB signals

*Update Table 75 by changing 55 ns to 35 ns in the may detect and shall not detect columns for COMWAKE. The existing table is shown below.*

<table>
<thead>
<tr>
<th>Signal</th>
<th>may detect</th>
<th>shall detect</th>
<th>shall not detect</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMWAKE</td>
<td>55 ns ≤ T_{idle} &lt; 175 ns</td>
<td>101.3 ns ≤ T_{idle} ≤ 112 ns</td>
<td>T_{idle} ≤ 55 ns or T_{idle} ≥ 175 ns</td>
</tr>
<tr>
<td>COMINIT/COMRESET</td>
<td>175 ns ≤ T_{idle} &lt; 525 ns</td>
<td>304 ns ≤ T_{idle} ≤ 336 ns</td>
<td>T_{idle} ≤ 175 ns or T_{idle} ≥ 525 ns</td>
</tr>
<tr>
<td>COMSAS</td>
<td>525 ns ≤ T_{idle} &lt; 1 575 ns</td>
<td>911.7 ns ≤ T_{idle} ≤ 1 008 ns</td>
<td>T_{idle} ≤ 525 ns or T_{idle} ≥ 1 575 ns</td>
</tr>
</tbody>
</table>