

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 75 — OOB signal receiver device idle time detection requirements

Signal	may detect	shall detect	shall not detect
COMWAKE	$55 \text{ ns} \leq T_{\text{idle}} < 175 \text{ ns}$	$101,3 \text{ ns} \leq T_{\text{idle}} \leq 112 \text{ ns}$	$T_{\text{idle}} < 55 \text{ ns}$ or $T_{\text{idle}} \geq 175 \text{ ns}$
COMINIT/ COMRESET	$175 \text{ ns} \leq T_{\text{idle}} < 525 \text{ ns}$	$304 \text{ ns} \leq T_{\text{idle}} \leq 336 \text{ ns}$	$T_{\text{idle}} < 175 \text{ ns}$ or $T_{\text{idle}} \geq 525 \text{ ns}$
COMSAS	$525 \text{ ns} \leq T_{\text{idle}} < 1\,575 \text{ ns}$	$911,7 \text{ ns} \leq T_{\text{idle}} \leq 1\,008 \text{ ns}$	$T_{\text{idle}} < 525 \text{ ns}$ or $T_{\text{idle}} \geq 1\,575 \text{ ns}$