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To: T10 Committee (SCSI)

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Subject: SAS-Idle at Start of OOB Signals

1 Overview

The current definition of the OOB signals indicate they start at the beginning of the first ALIGN burst. This proposal adds an idle time at the start of an OOB signal. With this change the OOB signals would contain 6 idles, 6 ALIGN bursts, and the negation time.

There are also some cases in SAS that define a 1 ms period when idle is transmitted on a link. This proposal would change that requirement to instead transmit a COMINIT.

The following changes would be made to SAS it this proposal is accepted.

4.6.2 Hard reset

When a port detects a hard reset, it shall stop transmitting on each of it's phys until the port transmits a phy reset sequence on each phy. stop transmitting on all its phys for 1 ms. Care should be taken when transmitting HARD_RESET to an expander device.

4.6.3 Loss of signal

When a phy detects loss of incoming signal, it shall stop transmitting until a phy reset sequence occurs. it shall stop transmitting for 1 ms. It shall not cause a reset event of the port.

6.5 Out of band (OOB) signals

Table 26 describes the OOB signal transmitter requirements for the burst time and idle time that comprise each OOB signal. When the link is synchronized, before sending an OOB signal, the transmitter shall transmit idle for 1 ms to ensure the receiver drops link synchronization and detects the OOB signal.

To send an OOB signal, a transmitter shall send an idle time followed by an the ALIGN burst followed by idle time at least six times.

It is not an error to receive more than six idle time/ALIGN burst pairs. After the last ALIGN burst a COMINIT negation time or COMSAS negation time shall occur. A receiver shall detect an OOB signal after receiving four consecutive ALIGN burst/idle time pairs (see figure xxx). It shall not detect the same OOB signal again until it has detected a different OOB signal (e.g., if the idle time changes) or has detected lack of transitions for a time greater then the proceeding idle time (i.e., a COMINIT negation time for a COMINIT idle time or a COMSAS negation time for a COMSAS idle time).The last idle time serves as the OOB signal negation time and is longer than the normal idle time for that OOB signal. A receiver shall detect an OOB signal after receiving at four consecutive bursts of transitions and idle times. It shall not detect the same signal again until it has detected a different OOB signal (e.g., if the idle time changes) or has detected lack of transitions for the OOB signal negation time.

The OOB signal transmission and detection figure would be modified so an idle time is shown before the ALIGN burst for all the OOB signals.