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TO: P1394a Working Group

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RE: Restriction on Link-initiated Fly-By Acceleration

When originally introduced, it was noted the ungoverned usage of either ack-accelerated or fly-by arbitration methods could indefinitely prolong delivery of a cycle start packet. Such “starvation” of the cycle start packet is avoided by defining a window of time during which the named accelerations shall not be used by a **node**.

At the August Honolulu meeting, the working group defined the boundaries for the restricted arbitration window. Neither ack-accelerated nor fly-by arbitration could be employed by a cycle slave node between the time a local cycle sync event marked the anticipated delivery of a cycle start packet and the time the cycle start packet actually arrived.

Clause 5.2.2 of P1394a Draft 1.2 contains modified language to prevent discrete PHY’s on cycle slaves from starving cycle start packets. However, the text does not sufficiently restrict the link from employing fly-by arbitration during the restricted window of time.

A link can use fly-by arbitration to concatenate a primary packet to the end of an acknowledge packet transmitted by the link. In the case of a discrete PHY/Link interface, the link signals it’s intention to use fly-by arbitration by asserting *Hold* to the PHY on Ctl[0:1] at the conclusion of the acknowledge transmission. The PHY has no currently defined mechanism to deny this concatenation request from the link.

To properly prevent links from causing cycle start starvation, text should be added to the draft forbidding use of the “hold protocol” during the restricted arbitration window. I propose the following bullet be inserted into clause 5.2.2 between items a) and b):

> "During this time period, the link shall refrain from using the hold protocol to concatenate asynchronous primary packets onto transmitted acknowledge packets."