**Memo**

**To:** John Lohmeyer, Chair, X3T10 Committee, X3T10 Committee Participants

**From:** Norman H. Harris, Principal Member, X3T10, Adaptec Inc.

**Date:** July 21, 1998

**Subject:** *Fast 20 Synchronous Negotiation Period Values*

### Summary

Numerous proposals pertaining to fast 20 period value specification in the synchronous negotiation message have been floated.  Most of these have met opposition due to their adverse impact on existing silicon and firmware.  At the Bedford, NH. July working groups, the discussion seems to have coalesced to consensus on using either 48 or 52 nsec period values to indicate the ability to support a fast 20 period.  This solution is offered as an alternative since a  20 MHz period of 50 nsec is not a multiple of 4 and cannot be encoded in the present scheme.

Host and target devices often have a difference in the granularity to which they can support transfer rates .  Under the rules for synchronous negotiation, such granularity differences can result in a less than optimum transfer period agreement.  The result is a substantial reduction in transfer rate below that of the advertised 20 Megabytes/sec.

 Many host and target devices which  negotiate synchronous are able to support periods that are clock multiples of 25 nsec.  Such devices can support a 50 nsec period.  A 52 nsec period is within the specification of FAST-20.   Therefore targets returning a 52 nsec value are correctly interpreted as supporting a 19.83 MHz transfer rate.  Assuming a 25 nsec granularity,  a negotiation would result in  the host supporting a receive rate of 19.83 MHz but choosing a 16 MHz transfer rate as the maximum that it can achieve without exceeding the 19.83 MHz rate corresponding to a period value of 52 nsec.  Conversely, a target currently specifying a 48 nsec transfer period, is "out of band", i.e. 48 nsec requires supporting a  value outside the specified operating range of FAST 20.


Adaptec wishes to propose the following be added to the appropriate clauses in SCSI-3 SIP and the Fast 20 specification.


" *A device shall  return a synchronous period value of 48 nsec to represent a true ability to receive at a 50 nsec period."*