

P1394b Accelerations
April 1998 Task Group Meeting Minutes
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'C' code

The new 'C' code was presented. The transmit and receive routines have been filled in with code. The routines depending on the actual request encoding remain pseudo-code at this point. The new code will be given to Eric for incorporation in the next P1394b draft.

Notation changes will most likely be made. The use of indications and signals will be refined. Synchronization and FIFO centering may be performed in the bport code. The node arbitration code being written by the accelerations task group would then operate in a single clock domain. Care must also be taken with respect to interactions between the arbitration code and the UPSTARTS suspend/resume code. Code development will be coordinated with the BPORT and UPSTARTS groups.

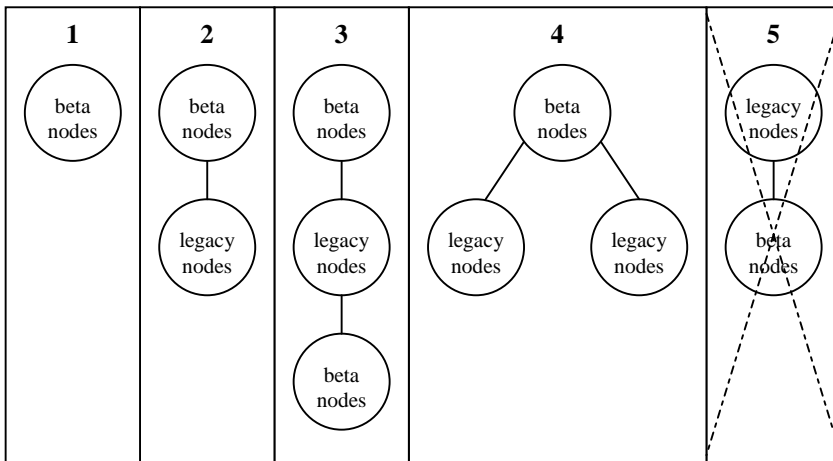
A list of PHY/Link interface protocol expectations must be provided to the Phy/Link group by the accelerations group and all other interested parties.

Mixed Bus Issues

An overview of some difficulties and possible approaches for mixed beta and legacy bus operation was provided. The following conclusions were drawn.

A mixed bus will never operate as efficiently as a beta only bus. In the worst case a mixed bus will operate with P1394a timing. In the best case the beta nodes will use BOSS arbitration. If this is accomplished by interleaving BOSS and legacy arbitration intervals, some gaps may still occur.

Support for mixed busses entails a simplicity/performance trade-off. Some topologies are more difficult to support efficiently than others. The following sample topologies were discussed briefly.



Topology 1 is the ideal case where all nodes operate in beta mode using BOSS arbitration. This topology may be achieved in mixed environments by inserting beta-capable bridges between beta and legacy domains.

Topology 2, the simplest mixed bus case, will be prioritized after topology 1 for acceleration. David Wooten made the following astute observation. If all the legacy nodes are attached to the beta domain through one beta node, this falls under topology 2 rather than topology 4 even if the legacy nodes are connected via different ports on the beta node.

In topology 3, the beta nodes in the root domain are expected to work as in topology 2. The beta nodes in the domain with a legacy parent are expected to act much as legacy nodes with legacy timing.

Topology 4 adds the burden of keeping the multiple legacy domains synchronized. Acceleration is still possible, but this case will be lower on the work priority list than topologies 1, 2, and 3.

Topology 5 becomes topology 2 if the beta nodes wait longer than the legacy nodes during the root contention process. Issues such as config timeout and contention in topology 3 still need to be considered.

Group Direction

The primary focus will remain beta-only arbitration. The 'C' code will be further developed and refined in coordination with the BPORT and UPSTARTS groups. Further work on some mixed bus cases will follow.

Tree-ID and or self-ID modifications should be defined to enable topology identification. If the topology identification is sufficiently detailed, it may provide useful information to nodes potentially using the isochronous resource mechanisms proposed by Richard Churchill as well.

More contributions/questions/debate via the bport reflector are encouraged. The following are suggested topics:

- mixed busses,
- self-ID changes
- phy-link protocol
- FIFO centering
- 'C' notation
- request type mapping