Accellera CWG Working Group Meeting
December 5, 2000

Hosted by CynApps

## Attendees:

Dan Gajski
John Sanguinetti
Dave Springer
Asa Ben Tzur
Brian Bailey
Andrew Guyler – phone
Dennis Brophy – phone

The Agenda was presented by Brian and contained the following items:

- Review Latest document V10 Prepare
- Plan for 'alpha' vote on document
- Prepare Concise Semantic Description
- Class Structure proposal
- Next steps – onwards and upward
- Standardization step (added by Asa)

## Review Doc

Page 10 Note 1. Same syntactic rules apply across all levels, although additional syntactic constructs may appear in each level. The underlying semantics may change.
Need to add netlist semantics. Dan agreed to do this. An FSMD, even if it is pure D does have an implicit FSM with a single state.
Discussion regarding glitches when a signal needs to be held for multiple clock cycles. Is this a problem for the semantics or for the tool to determine that glitches must be avoided? It is currently accepted that it has to be a tool problem since the semantics cannot know that it will occur.
Page 12 – Discussion regarding Ports connected to other Ports of different types. Is a cast an inline function that performs the function. Conversion rules must exist but where do they exist in the semantics. The conversion function must be defined somewhere.
When 2 or more FSMD's without FSM's are connected there is an ordering problem for correct execution since nothing defines the correct order of evaluation. When a complete loop is created it must be broken so that an execution order can be discovered by the tool. This may require global analysis to create a static schedule or may be performed using a simulation kernel with delta cycles. Ordering is defined by a sensitivity list on the data inputs. Should be all or non for the sensitivity list on the datapath. Did manage to define a situation where part list would be beneficial but could be reordered to remove it.
*** Dave to come up with an example that is not covered by the existing semantics by the next meeting.

It was agreed that two appendixes should be prepared:

- Appendix A – stripped down pure semantics
- Appendix B – class structure (See later Discussion)

## Plans for 'Alpha' Vote

The current document is almost complete and it is time to get a wider review performed. It was agreed that the first level should be done as a 'vote' by all registered members of the working group, even though most of them do not qualify for voting privileges. The form of this vote may either be to accept the document, or to document the areas of the document that they believe has problems and suggested action in order to

change their vote into a yes vote. We will aim to have the revised document ready for distribution by the middle of Jan and hold the formal review meeting 1 month later. All feedback must be in writing and will then be discussed at the meeting.

Meeting will be hosted by Mentor Graphics.

Following this meeting and the incorporation of changes, we plan to have a 'Beta' release. This release will coincide with an Accellera press release making its presence known to the broad market and soliciting feedback. At this stage the document will be moved into the "open" area of the web page.

We also expect to have tech pub time available at this time to start putting the document into its final form

## Appendix A – Concise description of Semantics

Initially, this had been slated to be a separate document but a proposal was made to attach it as an appendix to the document. In this way they will kept together and avoid version confusion. Dan has volunteered to do the data extraction to create this. It may or may not be available for the 'alpha' review.

## Class Structure

A proposal was made that we should, as a next step define a class structure which corresponds to the defined semantics, i.e. identify which objects should be elevated to a class and to ensure that the structure permits all of the attributes of the semantics to be defined. It is expected that 90% of the existing implementations is common here with only a few elements that may be contentious. In order to make a start on finding out if there are problems here, we will make a call for proposals in this area during the 'alpha' review phase. This will not be part of the review process and will be discussed and voted on separately after problems between libraries have been dealt with.

## Next Steps

There are certain issues that we need dealt with at the board level. These are:

- Press release regarding the 'Beta' release. Dennis indicated that this can probably be done through email.
- We need the notion of a reference implementation to be discussed and to provide us with guidance in this area. We will not work on this until there is some indication that we can be successful here.

Board meeting - Feb 28th

### *What comes after RTL semantics*.

The group is anxious to make a start on the next level, especially since this was the intended target for the group. A discussion yielded the following suggestions:
Need to start with a 'workshop' format. Invite end users, companies etc to make presentations that fall into two major categories

- Designer issues. What are they trying to solve, Where are they having problems. What are their requirements for higher levels of abstraction.
- Vendor proposals. What products can do, What technologies exist.

A suggested date for this is Feb 27th Tuesday before HDLcon
Action All. Think about invitee list and solicit proposals.
In addition, our special session at DATE is still undecided, but we should also plan a shorter session here to get more European feedback.

## Are we ready for standardization ?

RTL should be ready to become a standard so that it stops moving and tools can target it without fear of constant change. Isn't RTL defined by DC? It would be hoped that in the areas that DC does not comply,

there would be customer pressure over time to bridge any gaps. It is very close today. The standard will ensure backward compatibility as features get added. Should not push forward until a reference implementation has been proven and used. Pilot required. Then look at standardization

Action Items

** Dan to make changes to document as outlined above
** Dave to come up with a documented example showing needs for additional semantics for non-clocked or clocked and sensitive modules.
** Dan to create first draft of appendix A
** Dave and Brian to formulate the call for class structures.
** Dennis and Brian. Work on the press release and board approval.
** All. Generate ideas about the workshop and target end users to present and attend.
** All. Think about how a pilot program could be created.