

October 01, 2010

## Minutes of IEEE 1149.1 - Initialize Sub-Group Meeting

### Attendees:

Carol Pyron  
John Braden  
CJ Clark  
Hieko Ehrenberg  
Roland Latvala  
Ken Parker  
Brian Turmelle

### Minutes:

Today's meeting was a continued discussion of "sticky" commands, Carol presented a 'Straw Man proposal for additional instructions'

- CLAMP\_HOLD (sticky)
  - Sticky at UpdateIR
  - Same as CLAMP but sticky
  - Sticky until bit clearing action occurs.
  - Heiko and Carol talked on pin control behavior discussion:
    - Pin behavior undefined unless init\_set/run executed
    - Any intrusive instruction overrides CLAMP\_HOLD (EXTEST, HIGHZ, FUNC\_RESET)
    - Discussion whether FUNC\_RESET should clear the sticky CLAMP\_HOLD
- CLAMP\_RESTORE/RELEASE
  - This brought up discussion about divorcing CLAMP release from all other instructions. Cleared only by CLAMP\_RESTORE or TRST\_B (or internal TAP POR)
- CJ brought up examples of in-situ 1149.1 cases where CLAMP\_HOLD is needed: LBIST, MBIST, PRBS and Internal TDRs (Design specific Public or Private).
- Ken showed slide of all Public Instructions and asked that the group walk through each one of them and define the CLAMP\_HOLD/RESTORE behavior for each instruction.
  - Ken had questions about Boundary register state preservation when moving through TLR state. Seemed to him it was undetermined so could affect sticky CLAMP\_HOLD persistence.
  - Also BYPASS behavior in presence of sticky CLAMP\_HOLD, Traditional or not?
  - CJ responded No, we do not want to mix unlike things.
  - Carol EXTEST/HIGHZ and PRELOAD/EXTEST will update the BSR.
- CJ – CLAMP\_HOLD will block both the effects of TLR including the resetting of CONTROLR boundary register cells.
- Carol asked if Ken agrees with CJ on this. Ken looking into Std about this. 'What does the Std today tell us about content of BSR across TLR?'
- John asked about Boundary registers and how they are affected by TLR?
- FUNC\_RESET/INIT\_RESET

- Carol touched on this but meeting ran out of time.
- RTI state and #TCK cycles to invoke.
- Add to BSDL?
- CJ - Some TAPs will be reset by FUNC\_RESET, others will not. Do we need to define this behavior?

There were no firm conclusions reached or changes to the Standard proposed, and non voted on, at this time.

Roland touched on the fact that TRST\_B and TLR historically and in practice have been a simple OR function up to now. Changes will affect existing design rules/practices.

CJ pointed out that he felt the CLAMP\_HOLD persistence beyond TLR was already debated and agreed to over the past couple weeks so we should move on unless there are technical objections. If Synopsys for example agrees it could be easily coded into their future controllers.

The meeting ended on time.

Current Status:

Formalize Rules – In progress.

BSDL Constructs - – BNF coding in progress, semantic checks in progress.

Formalize PDL constructs – We need to start on this.

Actions:

- Carol to provide custom bidir IO example diagram.
- CJ to distribute his Board Test Workshop slides.
- Ken looking into actions of TLR on the Boundary register.

Work still to be done:

Formalize side-file language.

Incorporate INIT into 1149.1 Std.

Next meeting date:

Same time next Friday October 8th.