October 08, 2010

Minutes of IEEE 1149.1 - Initialize Sub-Group Meeting

Attendees:
Carl Barnhart
John Braden
CJ Clark
Hieko Ehrenberg
Ken Parker
Carol Pyron
Francisco Russi
Brian Turmelle

Minutes:

Today's meeting was a continued discussion of "sticky" commands,

- The meeting started with CJ reiterating his justifications (use in situ, use with instruments), and Carl reiterating his objections (creation of modal behavior in commands and TAP states.)
- There were a number of requests for clarification of behavior around the TLR TAP state.
- CJ asserted that on-chip POR circuits are becoming more common and therefore the use of TRST* less so.
- CJ explained how, in his schematic, the IR would not be force-loaded with either BYPASS or IDCODE in TLR if the sticky bit is set. It would be force loaded by the reset signal blocked by the sticky bit. Ken concurred with this approach.
- CJ asserted again that this capability is needed in industry.
- Carol pointed out that the "sticky" CLAMP affects earlier decisions in the INIT team that had said that init-data would NOT be preserved across TLR.
- CJ asserted that the normal use model would be PRELOAD, INIT_SETUP, INIT_RUN, and CLAMP_HOLD.
- Carol:
  - requested timing diagrams (waveforms).
  - pointed out that using data (CLAMP_HOLD decode) as a clock on CJ's diagram was a DFT violation.
  - questioned whether loading CLAMP or HIGHZ should clear the sticky bit.
- Carl asserted that CLAMP_HOLD would have to preserve init-data across TLR.

Ken walked the group through some of what the 1532 group had developed concerning the definition of "mission" mode:
- Mission mode is broken into several states, each with defined behavior, for programming a device.
- We could so something similar with test mode to create a defined post-test behavior
- The sticky-bit is a state bit

Returning to the debate, already in progress:
- Ken asserted that test software that assumed the ability to do blind interrogation would be broken by not forcing B"YPASS or IDCODE when the sticky-bit is on.
- CJ replied that since CLAMP_HOLD is being used for internal tests, it would not be the first instruction and should not impact blind interrogation and scan-chain testing (at least for the first test.)
- CJ also asserted that a scan-chain integrity test can be done with just the IR, regardless of whether the sticky-bit is on or not.
- Ken: We need to revisit the issue of the definition of "test mode".

- CJ: We need to revisit how we release CLAMP_HOLD.

The meeting ended more or less 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 Ocober 8th.