

**Date – 04/29/2011**

Minutes of the IEEE-1149.1 Working Group Friday meeting

**Attendees:**

Adam Ley,  
Wim Driessen,  
Brian Turmelle,  
Carol Pyron,  
Dave Dubberke,  
Craig Stephan,  
Roland Latvala,  
John Braden,  
CJ Clark,  
Carl Barnhart,  
Francisco Russi  
Ken Parker

Excused absence: Heiko Ehrenberg

**Meeting called to order at 8:35 am MST**

**Current Draft:** [P1149 1 Draft 20110502.pdf \(\\_clean.pdf\)](#)

**Agenda:**

Francisco's proposal to define rules for a segmented boundary register  
Wim's discussion about alternatives to PDL

General

No meeting last week April 22 due to holiday weekend.

**Today's Minutes:**

Topic 1: Segmented Boundary Register Rules Discussion

Part 1: Rules for IP blocks

- We reviewed straw man figures of boundary scan segments from CJ and Carol
- Francisco brought up the fact that IP providers have been known to provide partial JTAG solutions. For example: A bidr pin on the IP with in and out cells but no control cell. In this case Francisco would like to see a rule stating IP providers must provide a BC\_2 or BC\_7 type cell on their bidir IO.
- After much discussion we determined the heart of this discussion was whether we can enforce rules on IP providers to provide fully 1149.1 compliant IP blocks.
- Adam raised the point that 1149.1 is Chip Standard, not an IP block standard, so although there is much work that could be done in that area it should be done holistically and would require us doing some work on our PAR.

- The group took this into consideration, and will only provide some descriptive text to provide guidance and education in this area to IP providers.

#### Part 2: BSDL description of boundary segments

- Francisco also brought up the need to have BSDL register field definitions for the boundary register segments, and that the current register fields lack complete definition for mapping to BC cells and for defining each segment.
- Carl brought up that he'd like to table the discussion until he sees CJ's register field definitions.
- CJ mentioned that we can be aware of the register fields for boundary segments but cannot solve today.
- Carl inquired about 'segmented boundary register' description.
- CJ said there are ways to handle this in a package file for each segment and then assemble them.
- Discussion tabled for now until more details are worked out on register fields.

#### Topic 2: Alternatives to PDL discussion:

- Wim raised the question in email thread this past week about "what is philosophy of managing both procedure templates and the actual data" that needs to go with a given device.
- Carl thought that this topic should be discussed over email some more until it is more clearly understood.
- CJ agreed we can entertain this once it is further developed, and thought the group had decided upon PDL in the Friday meetings last year.
- Carl and Carol confirmed this and that a lot of work has gone into PDL development already.
- CJ mentioned we had reviewed Stil, PDL, SVF and other formats and stated that 1532 is no longer an IEEE Std since it was withdrawn and we shouldn't be trying to follow that effort.
- Francisco asked if we are going to develop PDL, will other groups sync up with 1687?
- CJ - Yes. We intend to sync up.
- Wim mentioned he wasn't aware that PDL was decided upon already. His point in raising this discussion was that he felt 'standard procedures' should go into BSDL and be provided by the Chip vendor. Routines for Phase lock loops, and so on which are chip specific shouldn't have to be figured out in PDL by board test engineers. You don't want to figure out how to make sequences for a chip at the board level.
- Ken stated that he sees Wim's position. How data gets in and out should be device specific, not instance specific. He liked PDL when it was linear. Now there are loops and this looks like 'scope creep'.
- CJ mentioned that Wim asked for looping capability and thought it was important.
- Wim will follow-up on this. It was related to a 'ready bit' and loop until ready.

- Wim gave an example of PDL programming, BSDL describes the procedure they need for each component, and then a side file has the data. This is simple alternative to having a PDL program for each component.
- Carl stated there is always a link between BSDL and PDL. That is not enough?
- Wim asked who provides the procedures?
- Carl – IC vendor would supply ‘some’ PDL. Templates with placeholders, fields.
- Wim – I’m wondering if that should go into the BSDL?
- Carol – We thought about that.
- CJ – I see a major difference between our work and programming a PLD. We are changing code, modifying code, developing a method to talk to a register inside a chip. Here we are dealing with a much more human environment interacting with the procedures and data. In 1532 you simply read the file and pull it into a BSD, to be used at that location. The size of those BSDL files can be very large. Also those are instance specific and that is error prone when people reuse the same BSDL for different instances. This is not a board tester language. It is a uniform register access mechanism. Example Francisco’s serdes may need at speed bist.
- Wim thought we are far outside the Std today.
- CJ said no, clause 9 describes registers today. CJ felt that customers would say of 1149.1 “you let me define these registers now how do I access them?” Should they have to go to 1687 Std to figure this out? No, you shouldn’t have to change Stds to get your tests developed.
- Wim – We have SVF today.
- CJ – SVF is 1s and 0s. It cannot be used efficiently.
- Carl summarized this discussion: In the BSDL a template of a procedure is attractive. The benefit of the PDL it is not as clear how much of it the IC vendor will have to provide. There are PDL procedures that can apply the data and wait for IC Reset for example. This might be describable in BSDL, but at the board level taking the PDL for multiple chips and interleaving commands with iApply statements can be worked out within PDL. If you do that in BSDL it cannot easily be used later on. The BSDL is ‘read only’ at the test floor. PDL is ‘read/write’. It makes sense to have the procedural stuff separate but linked yet still independent of the BSDL
- Ken described some distribution and logistics to think about. Bug fixes, redistribution. There are some issues there that we have to pay for. Tracking revs and so on.
- Carl restated that procedures should not go into BSDL which may need to be modified later.
- In conclusion CJ asked if Wim wanted to discuss on Tues. Wim agreed that if there is a majority in favor of pursuing this we can, else it is not worth it. CJ and Wim will bring up at the Tues meeting for follow-on discussion to see if there is support for pursuing this further.

**Meeting adjourned: 10:00am MST**

**Action Items:**

**Next Friday Meeting:**

- Next week Friday May 6, 2011