

Date – 11/08/2011

Attendees: CJ Clark, Bill Tuthill, Brian Turmelle, Carl Barnhart, , Ted Eaton, Craig Stephan, Dave Dubberke, Jeff Halnon, Dharma Konda, John Seibold, Ken Parker, Wim Driessen, John Braden, Gobinathan, Carol Pyron Brian Erickson, Sankaran Menon,

Missing with pre-excuse Adam Ley, Heiko Ehrenberg, Roger Sowada, Adam Cron,

Missing: Lee Whetsel, Neil Jacobson, Mike Richetti, Ted Cleggett, Matthias Kamm , Peter Elias, Bill Bruce, Josh Ferry, Francisco Russi, , Bill Eklow, Roland Latvala,

Agenda:

1. Patent Slides and Rules of Etiquette
2. **Review of BSDL changes from last week**
 - a. Motion to accept changes in BSDL
 - i. Subject to further refinement (some tweaks sent to reflector already)
3. **Review of draft changes Clause 9**
 - a. Motion to accept changes in Clause 9
 - i. Subject to further refinement
 - ii. (minor tweaks have been posted to reflector)
 - iii. -big picture/description (I am drawing figure and will write some text)
 - implicit or explicit rule on domain-sel/segssel in TAP power domain?
4. Group needs to define how this works.
 - a. iRead DEVICE_ID
 - b. iApply
 - c. BSDL provides a mechanism for describing a single capture value for any TDR (CAPTURES). In 1149.1-2001 this was defined
 - d. For the entire TDR. In 2012, one can have more granular capture values against R_F and not entire TDR.
 - e. Proposal for removing multiple capture values for DEVICE_ID somewhere was reversed.
 - f. If we leave as is. What is the operation we expect tools to do here? Are there three scan operations underneath the iApply?
 - g. So the tools have to key off of DEVICE_ID as a register and do something different?
 - h. With a single TDR capture value for DEVICE_ID, the above iRead would result in the equivalent:
 - i. SDR 32 TDI(XXXX XXXX) (12345678);
 - j. With multiple DEVICE_IDs what is it the group wants to do? Three scans or take the first defined capture value? Other?
 - i. SDR 32 TDI(XXXX XXXX) (12345678);
 - ii. SDR 32 TDI(XXXX XXXX) (56785678);
 - iii. SDR 32 TDI(XXXX XXXX) (67812345);
5. PDL Level 1

- 6. mixed R_F/R_A
- 7. Homework assignments

Meeting Called to order at 10:30am EST (new starting time)

Minutes:

Review Patent Slide – Reminder sent out over email.

Solicited input from anybody who is aware of patents that might read on our standard.

No responses.

Review of Working Group Meeting Guidelines

BSDL

Quick Review of the changes that were made to the BSDL section of the Spec (Annex B)

Ted feels that features added are feature creep and will make standard hard to be accepted during ballot

Carl has some of the same fears

Ted feels that the work here is more complex than what was in the PAR.

Motion to accept changes in Annex B related to segmentation and segmentation of the boundary register in draft 20111031.pdf and subject to further changes

Motion made by Carl

Seconded by John B.

8 Yes

Bill T. Craig S. John B.

Brian T. Dave D. Jon S.

Carl B. Dharma K.

0 No

4 ABS

Carol P. Jeff H. Ken P. Wim D.

Motion passes

Clause 9

Review draft changes

Carol: can never have a

Carl: no. If the tap domain is powered on and capable of running, and a TDR is broken than you are in violation of 9.3

Carol: can a compliance pin be a power pin

Carl: yes

Ted: Teal is talking about Boundary register. Comments are referring to are TDRs.. power muxes limited to boundary register or for any TDR register.

This is a complicated matter

Carl: for init data and boundary. No reason to restrict it.

CJ: nothing from preventing multiple instructions to select user defined TDRS

Ted: could be some cells that control segment selection that are powered down at power up. Having Rule to be always active in tap domain might not meet the goal.

CJ: mux should be in domain that is powered. Not allowing such control

Not enough support to support nesting of power muxes.

Dharma: comfortable with what he is reading. TDRS that are related to boundary scan are on the tap domain. Internal TDRs are optional on.

CJ: for internal TDRs we can use the same concept. Power Mux and Power Control can be in user defined cells too.

Jeff: uneasy with idea with multiple excluded segments that are controlled in the same power domain that they each need a separate domain control cell and then wired together. Could be confusing

Carl: we are saying if you have non contiguous cells in the same domain you need a cell selector. Could wire them together

Jeff: each time you have a excludable segment that has controllable power needs its own control cell.

CJ: could make it clearer. You can have multiple excludable segments with one power control.

Jeff: this whole thing can get out of hand quickly. How do we describe how these things how to be done. How do we teach the test engineers how to do this?

CJ: the thing that controls whether it is on is the domain control cell. If you turn on a segment there is nothing else that can turn it off.

Carl: you need at least one domain control cell on each TDR. When you load the segment select to load it put a 1 in domain controller. As long as that domain bit is on and override signal goes to power it has to stay active. Until you release it

Jeff: just because I am nervous about doesn't mean we shouldn't do it.

Putting up sophisticated control of power. Common scenario where the power control is off chip on the board or another chip. We are imbalanced in effort to provide features for on-chip access. There is the same problem for off chip powers.

CJ: Segment Select allows you to exclude a segment. This is for power for off chip. Domain controller is for On-Chip. Bigger problem is when that off chip voltage regulator is off you can shift through the shift regulator. Segment select allows you to observe.

Jeff: there is a limit to how much help we can give at this level.

Carol shows a figure used in Friday's meeting

Carol: domain cell is an attempt to override to power up the logic.

Can see if it succeeds in a capture value.

Doesn't power down a domain.

Ted: are power domain controllers in a different domain.

Carl: domain is in line with the TDR not in separate TDR

Ted: how do you check them to see if they are on or not?

Carl: if the tap is powered on they have to be powered on.

Ted: like a sib(p1687)?

Carl: yes. Segment that you cannot include another segment select. Only 1 level.

Ted: Any concept to renaming powered control cell. Could use same concept for multiple uses.

CJ: called domain control. Not power control.

John B: thinks Carl has captured everything that we need.

Carol: it is a request to override really

CJ: need a per domain control cell you need a wrapper to allow JTAG to come in.

Ken: figure 9-15. Why isn't there an end bracket on the domain? How do we know where it ends.

CJ: Current rule forces you to end where the mux is

Carol: is that true?

Ken: if you have 2 excludable segments in the same power domain. There is 1 bit that can turn it on or off. Because I don't have a and bracket (J) tell where the end is

Carl: Don't know why you need bracket. Will check cells after turning on domain cells.

Ken: can't be positive that turning on the control cell turned on the segment. Could have been something off chip

CJ: might be worth looking into it some more.

Carol: Concern as a chip designer is that there is that in capture you tell if the chip is accessible. But the chip might not know. To be compliant there needs to be sensors in the power logic and going to the logic.

CJ: should use acknowledge from power controller.

Motion to accept changes (teal in draft) relative to domain control and segment select in clause 9 in draft 20111031.pdf subject to further clarification.

Motion made by Carol

Seconded by Carl

10 Yes

Bill T. Carol P. Dharma K. Sankaran M.

Brian T. Craig S. Jeff H.

Carl B. Dave D. John B.

1 No

Ken P.

1 Abs

Wim D.

Motion passed

iapply

What do we want to happen?

iapply is a scan through a data register-SDR

iapply will perform the scan after a iread or iwrite

How do we want this to work with multiple device IDs

Do we scan multiple times to get all device IDs.

And what do we do if any of the expected values are wrong what do we do.

Carol: it is up to the test code to care

CJ: if we do an iREAD_ID
iapply

What will happen under the iapply

Ted: would expect the tool compare result coming back to all the IDs. Where it can do 3 scans or how it gets it back would be up to the tool.

CJ: When a PDL of iread/iapply what do we expect the tools to do??

Ted: depends on the tools.

CJ: what should the rule be in the standard?

Carl: agrees with Ted.

Carol: just read what is in the ID Code register

CJ: no. PDL level 0 you would have to set expected values against 3 different values.

Ted: has real life scenario with 60 devices with 3 sources each.

Need to come up with a methodology to come up with 1 scan and have the tools compare against the value

Ken: agrees with Ted and has seen the same scenario. To define PDL 0 to cover all scenarios is beyond the scope.

CJ: If then else scenarios in PDL1 is not what is asking

Asking – if I have an iread and a TDR followed by a iapply and there is more than 1 capture value for that TDR how do we direct how that should be handled

Carol: is PDL a device level construct or a board and device language.

CJ: look at line 10844 in the standard. What we are talking about is the relationship between BSDL and PDL. When we have a single capture value it is loaded in the expected value. How do we direct it when there is multiple values that can be captured. Do we put the first value in this field? Or do multiple scans. How do we manage what is going on with a simple iread and iapply

• **Meeting adjourned: 12:00 EST.**

2 Motions Made

Motion to accept changes in Annex B related to segmentation and segmentation of the boundary register in draft 20111031.pdf and subject to further changes

Motion Passed

Motion to accept changes (teal in draft) relative to domain control and segment select in clause 9 in draft 20111031.pdf subject to further clarification.

Motion Passed.

Next Meeting: 11/15/2011 11:00 AM EST

HomeWork Status

IEEE 1149.1- 2012 JTAG Working Group Minutes

John has passed his examples in to the working group. CJ is running them through the parser.

Carol – is still working on examples
Heiko is still working on examples.
CJ is still working on port assignments

Homework assignments.

Heiko and Carol's assignments are outstanding and will be done for next week's meeting

CJ will have examples of port assignments
Bill E – work on more concrete example and definition of the ESSID register

NOTES:

1149.1 working group website - <http://grouper.ieee.org/groups/1149/1/>

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[ppppp11491p*pp03820#](tel:ppppp11491p*pp03820#)

JOIN the meeting as GUEST – will have to ask to present

Meeting time: Tuesdays 11:00 AM (EST) (Recurring)

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