IEEE 1149.1- 2012 JTAG Working Group Minutes

Date – 12/06/2011

Attendees: CJ Clark, Bill Tuthill, Brian Turmelle, Craig Stephan, Ken Parker, Wim Driessen, Josh Ferry, , John Braden, Dave Dubberke, Carl Barnhart, Adam Ley, Bill Bruce, Jeff Halnon, Dharma Konda, Francisco Russi, John Seibold, Ted Eaton, Bill Eklow,

Missing with pre-excuse: Sankaran Menon, Carol Pyron,

Missing: Lee Whetsel, Neil Jacobson, Mike Richetti, Ted Cleggett, Matthias Kamm ,
Peter Elias, Roland Latvala, Brian Erickson, Roger Sowada,
Adam Cron, Heiko Ehrenberg ,

Agenda:

1) Patent Slides and Rules of Etiquette
2) BC_6 – reflector discussion on removing. Adam L. in favor of leaving
3) IDCODE tabled motion
    1. Mandatory DEVICE_ID
4) PDL Level 1

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

Should BC_6 be removed from 2012 draft
    CJ feels we shouldn't be tweaking everything and should be leaving the BC_6 cell in the standard
    Adam L: points out that his objections were broader than BC_6.
    CJ feels that the historical reference is important and cross checking needs to be there.
    Adam L: wants any other rules that are no longer applicable for version 2011 should be referenced as well.
    Carl: no consensus on this so we will leave it and move on
    CJ: calls if there are any objections to noting it and leaving it as a historical reference.
    Ken: is BC_6 in the 2012 standard package file
    Carl: no.
    CJ: that will catch anyone using the BC_6

Wrap up of Bill Bruce's Device ID proposal

    CJ is uneasy with the wording in Bill Bruce's write up

Doesn't like the 1 under the c.

Want to make clear that the First Device ID value is the Default.

Bill B: feels that it is.

CJ: Would be clearer if we word-smithed to make it say that it is the first ID register is the default register value. And the remaining is historical.

CJ: other problem is not allowing an X

Carl: wouldn't be the most recent or first value if it has an X

CJ: X's still has value. Doesn't affect the capture value. Still get the default capture value.

Carl: historical entries have no less validity than the first one. Would like an explanation of what default is for. In this context a default doesn't make sense. A given chip is going to return a device id. No default. Device id is device id.

Francisco: wants to know what the value that is loaded at reset

Carl: multiple values in BSDL is for pointing at multiple devices. The IC can't return multiple device id. There is no default in silicon

CJ: wants to know what the tools are going to pick as a capture value.

CJ: first value is the expected value. And this would be the value is one the tool would pick as the default value. Would then go through the list to find other values

Adam L: Carl's example with speed binning was not germane to the discussion.

If they can be distinguished by device ID than there would be 2 BSDLs

CJ: in c.1 can we remove the "shall include no X values".

Bill B: if you can write the rest of it so that it is not ambiguous than ok.

CJ: want to focus on "the value of the most recent change". Maybe "reflects most current device"

Carl: would ask for a quick vote of the first value having priority over the other values.

CJ: not so much a priority but just a list from top to bottom or bottom or top. Good for the human reader to see the list of device id's in order of change.

Bill B: if you force a chronological list than you remove need for Xs.

CJ: wouldn't be hung up on that too much

Ken: C is a recommendation and 1 is written as a rule. Need to fix.

John B: not really necessary. Something that is confusion at times. Leave it up to the manufacturer would make the most sense.

Wim: if the tool can only handle one IDCODE, it would use the first

CJ: the tool can handle multiple IDs and could guide the user. More interested in the ATE tester, simulation, PDL.. What is the expected capture value? In normal operation what is the Device ID that is expected. The latest at the top would be useful for the reader.

Bill B: should we vote if we want C as a recommendation.

CJ: close enough so we want to have the motion for the editor to go off and write. Enough trust that the editor can do it.

Bill B: spent many meetings on arguing on this point. So we should vote.

CJ: we are reaching consensus on tweaking for the words. Should keep moving forward. Just need to tweak the words.

Adam L: if the device manufacture as the producer of the BSDL knows that the device ids distinguish if a component is suitable for different applications, those should be segregated into different Device ID Capture values. No one has a priority over others.

Bill B: when there is a change from version 0 to 1 it should be clear as to what the test engineer needs to do. Should have examples in Annex B to show how X is used.

CJ: No motion but the editor will tweak c) so that it is palatable for all

CJ: wording d) was not clear without referring to e) . Possibility a note is in order

CJ: defer to the editor to tweak d

Ken: d) is a silicon issue

Bill B: in section 12

CJ: c) needs to be pushed down to the BSDL

CJ: what we wanted to recommend where it is possible there is value in distinguishing the difference in speed grade or temp grade show a difference in the Device ID.

Carl: and if you can you have e)

Carl will tweak sections d) and e) as well to be clearer

CJ: would like that vary clear we don't have any method right now to check for difference in temp and speed binning

Ted: don't see how 16 bits will hold all these variants. Wouldn't a bigger id be better

Ted: IC manufacturer doesn't' want you to know the binning information. That is info for themselves.

CJ: understood, that is why it is a recommendation and not a rule.

CJ: maintain the course and have the editor clear up the wording.

Return to Mandatory Device ID motion (tabled from last week)

Ken: with new revision we have given guidance and reasons as to why device ID is important and leave it to the device manufacture's judgment. Most parts have device ID now

CJ: agreed. What is the heartache that we are trying to solve?

Bill B: What is broken is that the board test guy can't count on it being there. Standard may go 10 years before it is revised, do you want to still have ID code optional in 10 years

CJ: not seeing it from other side. We are working quite well currently with BSDL and being optional.

Josh: as a Board Test Eng I do have board without Device ID. Not a show stopper, but it is a long way to go to see that they loaded the wrong part on.

If it becomes mandatory, not sure what will change in the tests.

It is a headache when the parts don't have a device ID.

Device ID would have been helpful for Debug

Carl: the problem is that people are allowed to not put device ID and allowed to "shoot themselves in the foot"

CJ: want to make sure we don't shoot ourselves in the foot with embedded taps as silicon IP where there is no need for a device ID.

Carl: secondary taps?

CJ: correct.

Adam L: use of embedded taps is out of scope.

What features in 2012 would they want to take advantage of that they would need to use the standard?

Carl: register attributes and register fields.

CJ: when we are compiling the BSDL, we don't know where this tap is going to be.

Adam L: register access and register fields are BSDL items not silicon items so the component conformance can back rev'd

Brian: devices could forgo Device ID and use ECID to get info on the part.

Carl: ECID allowed without IDCODE

Wim: Device ID only place you can check without any instruction.

Carl: anyone object to having a mandatory ID code

John Bradon: don't think it is necessary. Would leave it to the designer to be the judge as to what is best for his part. No evidence that people are not doing ID Code just because. Designers understand the importance of it.

Vote on mandatory ID CODE

Adam L	Yes	Carl B	No	Francisco R	Abs	Josh F	Yes
Bill Eklow	No	Craig S	No	Jeff H	Yes	Ken P	No
Bill Tuthill	No	Dave D	No	John B	No	Ted E	Yes
Brian Turmell	No	Dharma K	Yes	John S	ABS	Wim D	Yes

Motion does not pass.

No 8

Yes 6

Abstain 2

Discussion on TRST pin will be on reflector.

Meeting adjourned: 11:52 EST.

Motion Summary
1 Motion Made

- **Motion1 - The IDCODE instruction become a mandatory instruction**
  - Motion did not pass
    - 8 No
    - 6 Yes
    - 2 Abstain

Next Meeting: 12/13/2011 11:00 AM EST

HomeWork Status

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

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