Date – 02/Dec/2011

Minutes of the IEEE-1149.1 Working Group Friday meeting

Attendees:
Adam Cron
Brian Turmelle
Francisco Russi
John Braden
John Seibold
Josh Ferry
Carl Barnhart
Carol Pyron
Craig Stephan
CJ Clark
Ken Parker
Roland Latvala
Dave Dubberke
Peter Elias
Ted Eaton
Dharma Konda
Bill Bruce

Excused:
Adam Ley
Sankaran Menon
Heiko Ehrenberg
Jeff Halnon

Meeting called to order at 9:32 am MST

Current Draft:

Agenda for today:

- Any additional discussion on Mandatory Device Id (before vote on Tues.)
- Bypass-escape
- Carl / CJ's note thread on "TAPRESET in package file for DOMCTL, SEGSEL"

Minutes:

Carol asked if any follow-up on device id side discussion with Francisco, Carl this past week.

CJ said that once a BSDL solution is defined then it must be followed. The proposal from Bill says that every version that is supported is defined in the BSDL file.

Francisco clarified that for his example he'd like to know the default capture value for the device id.

Carol said a given silicon chip has only 1 device id value, but there is no pin that can tell if this is correct or not. Test engineers need to add checks for correct version.

Carl added that the mere concept of 'default' cannot be used for the compliance pins so no default device id can be defined.

Francisco clarified he wants information for simulations to test for the 4 device ids.

CJ has concern about having multiple capture values.

Carol confirmed with Francisco that if fuses are blown to define a device id it has to be done outside the BSDL.

Francisco asked if someone sees 4 device ids in the BSDL, which one will be used?

Adam added that from simulation standpoint we should have a tool feature to do that. Also can we do a register port association with this piece of the device id register?

Carl confirmed yes this can be done already.

CJ added that for 20 years we've had one device id and one capture value. Now we want to have multiples and tools have to support these multiple targets.

Carol added that board interconnect test may be the same for rev1 and rev1.1.

CJ confirmed that yes exactly. Customers sometimes never care which version they have. Others have more complex cases which were handled at higher levels.

CJ mentioned that another engineer from Raytheon confirmed that they have managed new parts based on a 'new project' so avoided conflicts in part revisions.

Carl confirmed this makes sense.

CJ still has concerns about the new recommendations in the Std, which allows multiple device ids.

Carl said that once a chip is on a board it becomes 1:1 and shouldn't be an issue. We are back to where we started.

CJ, ok you have defined the problem and the answer.

Carl concluded that there is nothing here that necessitates changing the rules in the draft.

CJ would rather not change the existing Std (2001?) with respect to device id. PDL can be used to mask lower bits.

Carol asked can you envision PDL tests for checking each version?

CJ confirmed we could have PDL tests that work with one version of the silicon and not another.

Adam asked about multiple device ids and how PDL could handle this.

Bill added that CJ wants 1:1 mapping where there is no such mapping.

CJ/Bill discussed handling the many to one mapping outside BSDL.

CJ said the complexity here is managed at a higher level of decision making. Board test tools can manage this outside BSDL.

CJ felt the many to one case is a small subset of industry.

Bill asked if a board level tester could select between 4 different values before it determines pass/fail?

Ken confirmed yes, this can be done.

Bill asked if a tester can choose among the 4 things, what's the problem?

CJ added that 'choices' make for slower tests. Test time is an issue. People want to have a known capture value. We want to scan a 3D IC for example and avoid having to manage multiple choices to pick from.

Bill asked if CJ wants to change the BNF to only allow one device id?

CJ said he knows he is in the minority but doesn't want to manage multiple device id choices. That can be managed in the assembly build outside BSDL on the fly.

Carol asked if any others want to comment?

John B. said he agrees with CJ and why change it now.

Ken said it has been there but folks haven't used it.

Ken also said the comma separated list was for a single file to describe 2nd source devices, or multiple versions of a part with same JTAG logic. He sees it as a file that IC vendors can rev the file and keep track of changes. This allows board test engineers to

track part revs to determine what the allowed revs are. This is a single point they have had to go to for the past 20 years to determine correctness.

CJ said that although allowing multiples has been there all the time, we now want to use it for another purpose.

Carl said he used this in the mid 90's. This isn't new.

CJ said he thinks it is quite rare to see multiple device id's in a single BSDL. Spinning silicon dictates device id's will change from a rev. CJ then elaborated on this and concluded some customers don't care about device id.

Bill said we need to look at the new device id proposal and see if any of the 3 choices will pass a vote. We need to split out this issue of multiple device ids in the BSDL into a vote of its own. As a group, what do folks care about?

CJ said Heiko, Wim, and some others are not on the call today.

Bill said we have 3 choices to pick from.

Carol confirmed Bill's position.

CJ said Bill should re-present the proposal with the controversial section parsed out as a separate item.

Bill said even the small tiger team of 3 folks debated these issues.

Dave said he wouldn't put multiple device id's in the same BSDL anyway.

Bill confirmed you are not required to.

 Ken asked Dave a question: If you change nothing but the version due to new stepping due to a functional change that didn't affect JTAG does the device id still rev? Dave responded yes.

Dharma added that for BSDL his experience from silicon vendor point of view, although he has one chip to two different customers with two BSDLs (two unique part #s) but same die. The functional device ids rev, but if JTAG is the same the JTAG device id doesn't change. Is this an issue?

CJ confirmed that if the part number has changed then it is a different chip at that point.

Dharma said customers haven't asked for them to maintain different version numbers over the past 10-15 years.

Peter added, that CJ suggested it is not a real problem, since chip vendors will not use multiple device ids. His company was forced to use multiple device ids by a customer who asked for this feature of multiple ids.

CJ asked why they wanted this in order to help the WG understand better.

Peter will follow-up on the reasons behind their request on the reflector.

Josh/John said they do not use multiple device ids today.

CJ asked if Bill can dice the proposal for device id?

Carl said it will already go into the draft to be viewed in context. He did not see in the proposal that Bill/Carol/Ken were recommending multiple device ids in the single file.

Bill/Carol confirmed there is a recommendation to put all part device ids that have like JTAG behavior to all be listed in the same BSDL.

Carl will flag that with a comment this controversial recommendation.

Adam recalled they should go in separate files. (?)

Bill said we may only need to vote on this one issue. We likely cannot change the BNF but we can change the recommendation/explanation.

Carl doesn't think a recommendation for multiple device ids in the same file shouldn't be a recommendation.

CJ said there is value in Bill's proposal and we should close this one issue.

Carol opened the .pdf of proposed changes to the draft, and the WG commented on the recommendations about multiple part id's and version numbers in the same BSDL

CJ said 12.4.1 Recommendation e.) is the controversial one.

Bill offered a refinement. People would like both. The new version, and a version history. The latest one would be the 'default'. The old ones couldn't subsume the latest one. We could rework the rule. The latest version would be the first in the list, all the others would be previous ones.

CJ/Carol said this has some merit.

Bill said the first one wouldn't have X's, the older versions in the list could have X's to compress them.

CJ said the tool would then have an expected capture value.

Carl would also like to tweak e.) to be a permission rather than a recommendation. One device id per BSDL would be the dominant case, but we can allow for multiple codes.

CJ would like to see Carl modify the draft for the latest thought.

Carl said he'd take a look at this and the feedback he has gotten, and will work with Bill's current 10 pages of device id draft.

CJ asked if we are ready to vote on Tuesday?

Carl confirmed we intend to vote on mandatory device id this coming Tuesday.

CJ asked if it was discussed this past Tues, in context of 'if it isn't broke don't fix it'.

Carl responded that the thought was that we should make device id mandatory.

CJ felt he was in the minority but doesn't want to make it mandatory, and added his reasons for this, in the context of 3D ICs and so on. Small TAPs may not need a device id. We don't want to error out on these cases.

Carol/Carl summarized that this needs to be closed soon. The vote is still planned for Tues.

Meeting adjourned: 11:03am MST

Action Items:
- Carl to revise draft rules for device id.
- Peter to follow-up on reasons one customer needed multiple device id's in the same file.

Next Friday Meeting:
- Next week Friday Dec 09, 2011 (Carol will be out, and Roland will host the call).