

Date – 11/29/2011

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

Missing with pre-excuse CJ Clark, John Seibold, Bill Eklow,

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

Agenda:

- IDCODE continued discussion
- Other email threads

Meeting Called to order at 10:35am 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.

Slides not shown but discussed

No responses.

Review of Working Group Meeting Guidelines

Review of IDCODE

Bill Bruce brought up slides

(continuation from previous working group discussion)

Manufacture ID code

Fabless silicon vendor would get a JEDEC id code.

Part Number Code

2 rules currently exist. NO changes to rules but added recommendation and permission

Recommendation – BSDL should include all part number codes for all variants that are valid. Contain register values in the BSDL file. Syntax allows a list of IDCODES in BSDL.

Permission – escape from rule b – if it is not technically possible or economically possible to do it.

Carol: always variants after the part are made. Speed Binning, different variations of part numbers, These don't get reflected in values you can read at time of selling the part.

A lot of time you don't change the pinouts when a chip is downgraded (less cores).

Ken: Same pin outs and same BSDL though?

Carol: Yes. JTAG boundary operations are identical.

Ken: could do a full boundary scan on pins that are not functional?

Carol: Yes.

Ken: reason I ask is that I worry about solder blobs on so called Unused pins and neighbor is used. Still would want to know about short and fix it.

Ted: are you changing the part numbers? Do they have different version numbers with fuses

Carol: limitation with ID CODE is that the ID CODE is shifted out with no functional clocks. If your fuse block requires clocks, you cannot use a fuse to moderate the value of an ID CODE.

Ted: ID CODE is there to tell the tool how to run JTAG tests than the value of the version doesn't matter.

Carol: right, if there is a behavior change than you need a different unique ID CODE

Ted: 4 bits isn't enough for version number. Quickly run out using variants

Carol: ID CODE is truly revisions of the MASK set. Part Number section which is 16 bits. Use compliance-enable pins

Ted: ECID doesn't have anything to do with what is in the package. Used to track information about chip/vendor.

Ted: If no discussion from changing IDCODE from 32 bits to a larger number of bits than this discussion is moot.

Bill B: 16 bits of part number and 4 bits of version can technically be one thing (20 bits).

Ted: Large companies hand out part numbers and won't give them out for binning and such.

Carl reins the discussion back in to the original discussion about multiple device IDCODES in a single BSDL and how to code it.

Bill B continues his presentation

Version Code

a) Not changed, 4 bits at 31-28

b) Version code shall begin with all zeros and incremented in binary order knowing it starts at 0 lets you know that it is the nth revision.

Dave : how is that beneficial

Jeff H: fewer wires to change maybe use gray coding for the version numbers.

Carol: good point it could be binary or gray code order.

Carl: this shouldn't be a rule and at most a recommendation and discussion

Bill B: knowing the rules and knowing that this value is included would be helpful

Carl: don't see the advantage in doing this. Not sure this is really that critical

Don't know why we would want to make it a rule

Ken: interested in differences but sympathetic to the IC designer. b would be a better recommendation. Sees 20 bits. Not hung up on versions vs. part numbers. Just looking for differences.

Bill B: All the device ID Codes in the BSDL is a recommendation. It is encouraged but not a rule.

Ken: can live with that opposed to today where there is no guidance

c) rule and d) recommendation

Decided for a rule and a recommendation to explain more.

Significant is determined by buyer and seller.

Carol: this implies a contract matter and out of scope of standard

Ken: this is guidance.

Adam L: says "understanding" not contract. Want to avoid "contract" because it will hang up the standard

Carol: understanding implies contract

Bill B: wants more information given out. What is the intent that the board guy is looking for.

Carl: get a feeling for what carol is saying in the first sentence of d) wants it less contract. Needs to be reworded a little.

If you make a change to your device that will break your buyer you should change your version number.

Ken: proposes change to Producer and Consumer. From buyer and seller in d)

Ken: No examples shown on slides.

Bill B: standard may live for the next 10 years and with technological changes many of these things will be feasible so we should be offering guidance.

Carl: would system logic be better than mission mode to be more consistent.

e) BSDL file should include all the device version codes for which that particular BSDL file is valid.

Bill B: right now you can give a BSDL with the latest device IDCODE in it. By adding this we can show the test engineer all the id codes possible for the part.

Would like to make it a rule, but would make it a recommendation. This would help the IC vendor pair down BSDL files. IC vendors will migrate towards it when they realize it there.

Carol: things some vendors will and some vendors won't.

Carol: the problem is that we name the BSDLs with part name and part version.

Ken: information management problem for us too. If you have the new version BSDL and not the old version IDCODE in the BSDL you will get failures too when you have mixes of old and new. Will have to create a list outside the standard to keep track of the codes to match up with the version of the Part.

Ken: willing to have it as a recommendation too. To get the functionality there.

b) and f) are related.

Open Issues

Should IDCODE become a mandatory instruction?

Bill B: logic guys are going to care. Memory guys will care. Might be a killer if you make it mandatory.

Ken: get into scenarios where the IC guy wavers on doing it all. Would hate to have someone to not do Boundary Scan at all because IDCODE would become too much of an issue. Would love to see it mandatory but don't want people to not do anything so keep it as recommendation

Carl: the issue isn't silicon it is pins. Make the commitment to the 4 pins than the silicon for the IDCODE won't make a difference. Process has to be compatible with putting in the boundary scan which is bigger than the IDCODE. Most companies are already doing it.

Carl: what problems does it create when the IDCODE isn't provided and you get bypass

Ken: makes it hard to get the C in PPOLA. C is the correct device. Makes it hard to get the correct device.

(Secretary's note for those that are interested - <http://en.wikipedia.org/wiki/PCOLA-SOQ>)

Carl: in terms of dollars, providing the IDCODE would give a less expensive test.

Ken: less time and energy, and more accurate.

Heiko: would be in favor for it being mandatory. Would help in automatic chain discovery.

Bill B: any one would object to this?

Ken: how many IC providers are on the call

Carol and Carl identified.

John Bradon: doesn't know of an IBM part that doesn't have it.

Josh: ran into parts without IDCODE which gave headaches. Having the IDCODE helps do some simple debug of the chain and parts.

Bill B: makes a motion that the IDCODE instruction become a mandatory instruction

Carl: and that it be the only choice at time of reset to be loaded into the IR.

Adam L: already a rule that says if IDCODE is provided it will be loaded.

Carl: ok.. I'll recant that.

Ken: need to grandfather older parts built under earlier standard.

Bill B: leave the use statement the same and there won't be a problem.

Ken Seconds the motion.

Ken: words should be put in that it is mandatory with latest standard only.

Ted: may want to document the leakage of my pins so how do I release a new BSDL for a part.

Ken: you can describe it with 2013 version of the standard but be compliant to the 2001 version.

Carl: 2 different compliance statements in the BSDL. One that states the silicon and one that states the compliance of the BSDL

Carl: makes a motion to table this discussion for a vote at next Tuesday's meeting.

Ken Seconds this motion.

Bill B: will send out a statement of the motion to the reflector.

No one objects to tabling the motion made by Bill B.

Carl: no real change in Bill B. slides to the IDCODE. Adding more guidance.

Motion to direct the editor to adopt the material presented into the draft that it can be reviewed and voted on by the working group

Ken Seconded.

No Discussion.

Vote -

Adam C.	Abs	Carl B.	Yes	Heiko E.	Yes	Josh F.	Yes
Adam L.	Abs	Craig S.	Yes	Jeff H.	Yes	Ken P.	Yes
Bill T.	Abs	Dave D.	Yes	John B.	Yes	Ted E.	Yes
Brian T.	Yes	Francisco R.	Abs	Wim D.	Yes		

11 Yes

4 Abstain

Motion passes

Discussion on Bypass and unused Opcodes

Bill B: if OPCODES are not listed they must decode to bypass.

If you bothered to do that does anybody care. Would you rather see the standard change to undefined means do not use. A private instruction because an undefined instruction.

Ken: computer will read 100 of pages of OPCODES and store it away. Would feel sorry for person who had to write it. If you have OPCODES that you don't have any use for, will the silicon do something predictable or hang up there?

Bill B: a lot of times the engineer doesn't know.

Ken: add some sort of statement to have the silicon default to a known state (bypass) rather than describe in the BSDL

Bill B: should it be the board guy or the IC guy? Do we care?

Bypass discussion will continue on the reflector.

Meeting adjourned: 12:04 EST.

Motion Summary

3 Motions Made

- **Motion1 - To a motion that the IDCODE instruction become a mandatory instruction**
- **Motion 2 - To table Motion 1**
 - **No objections. Motion passed.**
- **Motion 3 - To direct the editor to adopt the material presented into the draft that it can be reviewed and voted on by the working group**
 - **11 Yes**
 - **4 Abstain**
 - **Motion passes**

Next Meeting: 12/6/2011 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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JOIN the meeting as GUEST – will have to ask to present

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

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