

**Date – 10/13/2014**

**Attendees:** CJ Clark, Adam Ley, Bill Tuthill, Brian Turmelle, Craig Stephan, Dharma Konda, Frans de Jong, Gobinathan Athimolom, Ismed Hartanto, Jon Colburn, Josh Ferry, Tapan J Chakraborty,

**Absent with Excuse :** Bob Gottlieb, Steve Sunter,

**Not Present for  $\frac{3}{4}$  of meeting:**

**Missing:** Bill Huott, Carol Pyron, Jim Wilson, Kent Ng, Kevin Gorman, Tom Wayers, Heiko Ehrenburg, Dave Armstrong, Roger Sowada, Dwayne Burek, Zahi Abuhanmdeh, Mike Ricchetti, Saman Adham, Gurgen Harutyunyan, Teresa McLaurin, Philippe Lebourg, Marc Hutner,

**Agenda:**

- 1) Patent Slide
- 2) Draft 40/41 discussion on channel bonding and new figure.
- 3) Let's reserve 15 minutes for continued discussion on standardization outside of IEEE
  - a. SJTAG – Perhaps some insight from Adam Ley on this group would be useful
- 4) New business
  - a. Please send new business topics to the reflector, if any, we can take it up at next meeting
- 5) Next week's meeting cancelled
  - a. Next week is ITC and I think some people will be in tutorials or flying to ITC, so let's skip unless objected.

**Meeting Called to order at 11:05 am EDT**

**Minutes:**

Review Patent Slide – Slide Presented to the Group.

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

No Response

**Channel Bonding**

**Section 8**

Figure 8-1 shows 4 lanes.

Attempting to show how the characters are being sent. Before you can run anything with channel bonding you need to run an alignment character to eliminate the skew between lanes.

First alignment needs to be sent with an sop on the first lane, then config on next lane, than id on next lane, and last id on last lane. CRC32 byte on each lane

Pad out lane with idle characters.

Group doesn't have any negative feedback for figure.

Will need to add some rules and syntax

**Section 7.2.2 Syntax**

HSTAP needs to be updated for more than one lane. Needs to describe the lanes themselves rather than inferring the lanes from the order in the BSDL file. Needs a grouping at a higher level to describe the lanes.

Need to add some indication to show that the channels are good to go and no support necessary so the packet command isn't needed. Need some way of indicating that the packet is not needed.

New inbound packet – the channel bonding packet, which is optional to implement (unless otherwise decided it isn't optional)

Tapan – estimate of overhead on HSTAP included?

CJ – nowhere in the document have we put that. Will depend on what you implement, as there are many options. Doesn't feel it will be much different than a codec decompressor engine used for compression.

Tapan – adding different registers, some example how much flop count and expected gate count would be helpful. Whenever there is a new proposal the designer backlash is how much does it take.

Craig – had provided a number previously and would have to look back to get it. 1500 is in the ball park.

CJ – will try and work with suggestion but will be providing a number that doesn't have a scientific weight to it.

Tapan – example would be fine. Would give us some idea.

Craig will review his previous example and come back with some numbers.

Channel bonding rules.

Should this be “channel bonding” or “lane bonding”?

Group sticks with channel bonding

rules

1. Channel bonding is initiated by sending an align character
2. An HSTAP design to support channel-bonding shall receive packets as defined in Clause 6 using (striping?? base data size??)
3. The response to the align\_char from the HSTAP shall be the align\_char if the lane is ready for channel bonding and the error\_char otherwise
4. The design of an HSTAP with channel bonding shall be such that the HSTAP expects any SOP character on the first lane.
5. If the EOP is not on last lane then an idle\_char is sent such that the next SOP character is on lane 1(1 based) <- needs better wording to describe HSTAP

Need to break down rules based on size of encoding. Based on description in 7.4.1

## IEEE 1149.10 High Speed JTAG Working Group Minutes

SJTAG – is it an IEEE proposal. Or is it going on its own

There is an SJTAG.org

Adam – SJTAG was sanctioned from TTSG as a study group. Formal lifetime of IEEE sponsored study group is one year. However SJTAG still considers itself on track to get a PAR from TTSG

CJ – difference from TTSG and TTSC?

Adam – TTSG and TTSC are alias to same thing. Should probably refer to TTSC.

CJ – no number associated with group and have no PAR.

Adam – SJTAG is not an IEEE working group. Not a project at all. It is a group that is openly discussing a project space that wants to see if there is sufficient need to move forward for a project request to TTSG.

This is a different case from p1149.10 where it currently has an outstanding PAR under IEEE.

CJ – can't find a rule that says that if there is a PAR you must complete the project. So I think we still have the option to go out on our own.

Adam – SJTAG is pre IEEE status. No draft at this time.

Adam – would like to state that he is not familiar with the particular issues described, and also is not here to defend IEEE or SJTAG.

Follow up on Adam's action item

Adam had contacted IEEE representative to discuss IEEE benefits of standardization

Representative that would come speak is Catherine Bennett.

Adam proposed week after ITC, This may conflict with people returning from ITC

Adam checked Catherine's schedule to see what her availability was a week or two after ITC. Found that Catherine is not available Nov 3<sup>rd</sup> or 10<sup>th</sup>.

CJ will try and squeeze in discussion at the meeting after ITC then (Oct 27<sup>th</sup>).

**No p1149.10 meeting - ITC next week (Oct 20<sup>th</sup>).**

Send New Business request to reflector

Please use reflector to review what is in the Draft.

Please send comments to reflector.

Anything that needs to be updated or you would like discussed

**Motion to Adjourn: Brian**

**Seconded: Josh**

**Meeting adjourned: 12:00 pm EDT**

**Next Meeting:**

Oct 27<sup>th</sup>, 2014 11:00am

*Motion Summary*

*0 motions made*

*Action Items*

~~*Bill Tuthill—10-21-2013—Add minutes and Attendance spreadsheet to the website.  
CJ—11-11-2013—Reach out to ATE industry and Probe Industry to get update on future of ATE equipment to see which data speeds and protocols they are heading towards.*~~

*Philippe – Look into alternative method to create control information (pause, start, terminate, etc.) rather than using K characters in packet.*

*Bob – create a case study to show use of Attributes*

*Frans – will start some block diagrams of a simple use case to help illustrate the current architecture*

~~*Dwayne—present to the group his ideas for a simplified scheme—Direct Interface.*~~

~~*Adam—invite someone from IEEE to speak on IEEE benefits of standardization at WG meeting*~~

NOTES:

1149.10 working group website - <http://grouper.ieee.org/groups/1149/10/>

Here is the WebEx conference link.

<https://meetings.webex.com/collabs/meetings/join?uuid=MAG12PB7HN5W24AM2EOKIOM9KS-KERT>

You can use VOIP on your computer or dial-in using the phone number below.

Audio Connection

+1-415-655-0001

Access code: 194 196 960