

**Date – 11/25/2013**

**Attendees:** CJ Clark, Adam Ley, Bill Tuthill, Brian Turmelle, Bob Gottlieb, Craig Stephan, Dwayne Burek, Frans de Jong, Dharma Konda, Gurgen Harutyunyan Ismed Hartanto, John Colburn, Kevin Gorman, Marc Hutner, Tapan J Chakraborty, Zahi Abuhanmdeh,

**Absent with Excuse:** Teresa McLaurin, Steve Sunter,  
**No Present for ¾ of meeting:** Philippe Lebourg,

**Missing:** Kent Ng, Tom Waayers, Bill Huott, Saman Adham, Jim Wilson, Dave\_Armstrong, , Gobinathan Athimolom, Josh Ferry, Mike Ricchetti, ,

**Agenda:**

- 1) Patent Slides
- 2) Further discussion on slides
  - a. Brainstorming session on communicating scan chain data. If chain/WSP select is one-hot encoded, what's the most efficient way to send the chain selections when chain count is large?
- 3) New Business

**Meeting Called to order at 11:03 am EST**

**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

Review of slides labeled *P1149\_10\_high\_speed\_jtag\_basicsv2.pdf* that were sent on the reflector

CJ updated the packet definitions in this version of the slides.

Chain select in scan packet (slide 23) is there a more efficient way to convey this information?

Dwayne – you could have chain select define an interface and add a level of hierarchy (Grouping)

Frans – agrees with a grouping method

Jon- would be more of a selection of a target which the ATE doesn't need to understand.

CJ – sees a need for when we compile the scan information that there is a way to tell the chip which scan chain needs to deliver the data.

Jon – sees scan chains as internal scan **channels** and not scan chains.

CJ – likes the term scan channels.

Marc – channel is a super set of scan chains.

Need terminology defined

Jon – define them as groups for the interface.

## IEEE 1149.10 High Speed JTAG Working Group Minutes

Dwayne – might have to have different definitions of channel grouping for different maskings.

Dwayne – will come down to channels (group A, group B, etc.. )

Dwayne – similar clock going to groups there is no way to throttle a clock.

Jon – could we qualify the clock by the chain select?

Dwayne – would need a clock by chain.

CJ – Is thinking of terms of 1500 WSP where you can clock the chain as long as C/S/U is not asserted

Dwayne – would want to run the groups concurrently with padding.

Jon - Which subsystems get the clock?

CJ shows the Capture non gated TDR from 1149.1-2013

Jon – can't put flops with 2 mux's in the core. Ok on the boundary cells. Designers already do not like to put a single mux on flop.

CJ – would you want to send the data in without packets?

Dwayne - possibly

CJ – packets would allow you daisy chain the scan chains, Also need the packets to route the data

Dwayne – Is there any path to do any prototypes of these ideas?

CJ – Yes. is trying to have some prototyping done.

Dwayne – wonders how complicated it might be to do the deep packet inspection of the packets.

CJ – doesn't think it will be bad but we will have to see.

CJ – Feels we need the response packets

Scan Packet

CJ – is it required to tell the data words and cycle count?

Might be hard for the encoder to do it if you want asymmetrical packets.

Philippe –should inform the encode/decode of the structure of target being addressed in terms of width of the input and width of the output.

CJ – yes encoder needs to be aware of the architecture.

Bob – limit it for each packet to a single bit shift. So there would be 1 bit of depth.

Would interleave better.

Dwayne – agrees. It would eliminate some buffering as well.

Dwayne – width of receive data on TX line could be different with asymmetric. If we do 1 bit per output channel per packet than it would be simpler.

Jon – using 32 channels that is more than doubling overhead

Dwayne – right.

CJ – 32 channels might be limiting

Jon – 32 at a time. Still can address it.

Dwayne- would limit the channels to the digital pin access.

CJ – should allow both interfaces to work. Can still do some regular access through the pins.

Motion to adjourn – Marc

Seconded – Dwayne

**Meeting adjourned: 12:08 EST**

**Next Meeting:**

December 2<sup>nd</sup>, 2013 11:00am

*Motion Summary*

*0 motions*

*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.*~~

NOTES:

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

Conferencing software - Live Meeting

Click here to [Join the Meeting](#)

**Audio Information**

**Computer Audio**

To use computer audio, you need speakers and microphone, or a headset.

**Telephone conferencing**

Use the information below to connect:

Toll: +1 (218) 862-1526

Participant code: 114910

**First Time Users:**

To save time before the meeting, [check your system](#) to make sure it is ready to use Microsoft Office Live Meeting.

**Notes**

**Troubleshooting**

Unable to join the meeting? Follow these steps:

1. Copy this address and paste it into your web browser:  
<https://www.livemeeting.com/cc/intellitech/join>
2. Copy and paste the required information:  
Meeting ID: DOT10  
Location: <https://www.livemeeting.com/cc/intellitech>

If you still cannot enter the meeting, [contact support](#)

**Notice**

Microsoft Office Live Meeting can be used to record meetings. By participating in this meeting, you agree that your communications may be monitored or recorded at any time during the meeting.