

Date – 04/21/2014

Attendees: CJ Clark, Adam Ley, Bill Tuthill, Bob Gottlieb, Brian Turmelle, Craig Stephan, Gobinathan Athimolom, Ismed Hartanto, Jon Colburn, Josh Ferry, Marc Hutner, Roger Sowada, Steve Sunter, Tapan J Chakraborty,

Absent with Excuse : Philippe Lebourg,
Not Present for $\frac{3}{4}$ of meeting:

Missing: Bill Huott, Carol Pyron, Jim Wilson, Kent Ng, Kevin Gorman, Saman Adham, Tom Waayers, Heiko Ehrenburg, Gurgen Harutyunyan, Zahi Abuhanmdeh, Dwayne Burek, Dave Armstrong, Dharma Konda, Frans de Jong, Mike Ricchetti, Teresa McLaurin,

Agenda:

- 1) Patent Slide
- 2) Review Frans' flow diagram
- 3) Comments on Draft 9?
- 4) Review changes in Draft 10

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

Feedback from VTS

CJ gave a small presentation

Went well. May pick up some additional participation

Review of Draft

Clause 6

Need examples. If there is a specific example you want to see in the draft please submit the example for review

Data that goes out on the wire will need to be encoded into the protocol that is required. (8b/10b 64b/66b, disparity +/-, etc). Should be understood by those that read standard

Raw Packet – used to enable some PRBS where data coming in on receiver is sent back on transmit. How do we get it out of this mode? Reset, clear character,

PDL routine with TAP? If you don't have a TAP how do you get out of it?

Packet not used normally unless you were doing some debug.

Mode would be when you enable the far end (UUT) and put it into a loopback mode and blast raw data to it. Allows you to evaluate the quality if the setup. Not seen as something to be used in production.

Jon – giving you can't get out of it without using DOT1, is it necessary to have it in the DOT10 spec?

Marc – only reason to see why you would want this is you don't understand all the reasons to load data. Not being able to get out of it seems like a draw back.

Bob – format it as a packet type that gets loopback.

Marc – remove term PRBS from definition

Bob – loopback is important for debug

Bob – similar to other type of packets. Defines it as a loopback packet with a length of bits to transmit

CJ – specify a length and raw packet will stay in that mode until that length is reached.

CJ – Agreed that the Power Cycle is a hassle. Not in production though.

Marc - didn't like PRBS as it doesn't feel like we are doing PRBS. Doing more of a data loading check. Just a RAW loopback test.

CJ – yes it is raw data going out and back in. But used for PRBS.

Marc – It's just a loopback. Can use it for anything.

CJ – your objection is that you are not forced to do PRBS. Will reword it as an example as what you can do. Not specific for PRBS.

Marc – right.. That sounds like what it should be.

CJ – should length be 64 bits or 32? Is 32 enough?

CJ - What are we missing? (Packets)

Would like to see an example from beginning to end.

CJ – any feedback on Draft 9 or PEDDA specifications?

No responses.

Clause 7.6

Scan channel Attribute

Need something that associates the group number to the scan channels that are present.

Need to know that channel associate goes to which group as the packets are in terms of group numbers.

Steve - what is the speed that testers can deliver to chips right now through SERDES?

Josh – ways to go to 15 – 20 Gigs. Solutions for productions that go past 15Gig.

Steve – is that used today

Josh – Today there is a mainstream instrument that runs 10Gig. To go faster there are some ways to do it.

Steve – actual delivering data

Josh – 10G instrument loads data

Steve – can chips handle scan data at these speeds?

CJ – early on we considered that as an advantage. The virtualization of the scan chan.

Have more scan chains and can lower the clock rate and lower the power.

Steve – is there a demonstrated need for it. When we deliver

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- Tapan – another aspect. Multiple clock pins are assigned. So the instantaneous power can be controlled.
- Steve – designing this mechanism to deliver high rates of data but can the chips handle the required power at that speed.
- Tapan – what we are discussing here is important issue. The method here is important as long as the power issues can be handled.
- CJ – different things you can do that you can't do with a common clock.
With 1149.10 interface you can add in capabilities without adding pins
Should be looking more out from today but towards 5 years out. People will need more bandwidth in the future.
- Steve – just wanted to raise the issue with Power.
- Bob – wouldn't try to spec the power here?
- Steve – no suggesting we should cover power. Just curious if we have data that says we are at the limit of what chips can handle
- Bob – at Intel will use extra bandwidth than what we can get from 1149.1
- CJ – for each chip and user there are different metrics. No known that shows we are at the upper limits. What will matter is what the target UUT is and how it was designed.
- Tapan – bandwidth is going to increase. Power issue is definitely important and needs to be handled with the design. Cannot unilaterally increase the compression.
- Steve – just wondering if power is a bottle neck at this point.
- Jon - Pin issue is bigger. Contacting 100's of pins
- CJ – One of the problems this standard is trying to solve. To reduce the pin counts.

Call for New Business
No new business

Motion to Adjourn: Bill
Seconded: Marc

Meeting adjourned: 11:57 EDT

Next Meeting:
April 28th, 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.

NOTES:

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

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