

Date – 2/2/2015

Attendees: CJ Clark, Adam Ley, Bill Tuthill, Bob Gottlieb, Brian Turmelle, Craig Stephan, Dharma Konda, Jon Colburn, Steve Sunter, Tapan J Chakraborty,

Absent with Excuse: Frans de Jong,

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, Zahi Abuhanmdeh, Mike Ricchetti, Saman Adham, Teresa McLaurin, Philippe Lebourg, Ismed Hartanto, Dwayne Burek, Gobinathan Athimolom, Gurgun Harutyunyan, Josh Ferry, Marc Hutner,

Agenda:

- 1) Patent Slide
- 2) Steve Sunter – enabling word-alignment for 8B/10B
- 3) New business
- 4) Adjourn

Meeting Called to order at 11:10 am EST

Minutes:

Review Patent Slide – Slides Presented to the Group.

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

No other responses noted.

Steve's email – enabling word alignment

Steve – not talking about 16 bit “word” in email. Referring to word as the parallel port width.

Steve - Trying to make sure standard supports different implementations. Not a specific implementation.

Steve –As an example has seen some PHYs that require double SOP/EOP/IDLEs. Need to make sure those chips can be accommodated.

CJ – don't have to fit the proposal of the standard to match everything that has been implemented.

“Direct Drive” – taking bits directly from PHY after unscrambled and driving a dedicated scan chain attached.

Steve - What is in the HSTAP- included Protocols? Is everything word aligned when it comes out of the HSTAP? Where is the boundary being drawn?

CJ – would depend on the implementation. The standard isn't creating a specific that the HSTAP is this and doesn't include anything else. It is a behavioral tap.

Behavior of HSTAP and PEDDA as a combination. Defining packets for instance.

Bob – interface side is where we are in packet format width for whatever width we want.

Strips out encoding format and provides it to the PEDDA as a packet. And the PEDDAs job is to reformat data from the chain as a packet.

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Steve – does it include control characters?

Do you get the control characters embedded or are they stripped out.
Standard implies that it handles.

Bob – HSTAP is not doing anything with the control characters

CJ – depends on the control character. EOP and SOP or error character the HSTAP can't do anything with. IDLES can be consumed in the HSTAP. There are no rules on the right side of the HSTAP or left hand side of PEDDA so you can adjust that interface for your implantation.

Bob – ok to have the HSTAP doing some stripping of control characters per implementation.

CJ – Can add rule that you have are the only things you have for implementation. So the lack of rules is more to add flexibility.

Bob – everything is in packet format is at the PEDDA side. You're saying that isn't mandated. Should be able to put packets into the PEDDA from TAP

CJ – nothing preventing you from doing that.

Steve – if you don't have word alignment the PEDDA seems complex and a messy design. If we are going to make the assumption that if you are word aligned that is fine. But don't see support for it.

CJ – we are not currently supporting this. But we can adjust the packet format to help with this.

CJ – odd number packets like RESET packet. Even and Odd number of bytes that this is the same as word alignment?

Steve – words could be 4 byte. Not the total issue though.

Steve – if the port width is 4 bytes wide. Are you going to get the beginning of the packet in the first byte or anywhere?

CJ – As currently defined it would be the first byte or the 2nd byte

CJ – in this proposal the SOP is defined by the implementer. If we had a PHY that would consume a certain control character we would have to pick an SOP that would make sense so it would get pasted.

Bob – if you think about IDLES, if we have the option to filter and not filter. Steve's point is you don't want to give complete flexibility on how data is aligned when it shows up at the PEDDA.

CJ – seeing a distinction between the two cases. IDLES being gobbled up by the PHY means that the IDLES are consumed by the PHY and no passed to the PEDDA

SOP needs to be seen by the decoder in the PEDDA.

IDLES are something that the PEDDA doesn't need to see.

Bob – SOP could be anyplace depending if the IDLE was filtered or not filtered.

Steve's point is that you can't give complete flexibility to where the SOP shows up because it would be too much logic.

CJ – Is in agreement. But doesn't consider it that much burden if you have to choose between byte 0 and byte 2

CJ – issue that makes it tricky is the odd byte packets in 8b/10b.

Direct Drive – byte alignment needs to be done better to support that.

CJ – IDLE characters. can't really send just one in 8b/10b to keep the running disparity even. Would have to send a +K (IDLE) and a -1 (IDLE)

Steve- you can do that in the data. Can make sure the next data byte

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CJ – not from a practical stand point. The ATE is formatting the packets ahead of time.
CJ – would insert 2 IDLES so the running disparity is the same.
CJ – if we want to put a rule in the standard am OK with that.
CJ – answer to aligning 8b/10b would be to add a rule where the packets are formatted on 16 bit words.
CJ – 64/66 we get 64 bits of control character.
Steve – proposal isn't optimized for 64 bit words yet.
Is useful to know the width of the interface to know how to make the data aligned.
Steve – make sure the packets have boundaries based on the packet width.
CJ – is it a challenge to pick out an SOP?
Steve – Find the SOP is easy but if you have to interpret the rest of the packet from that point forward that is where it is getting complete. Want to avoid that to make it light weight.
Steve – this is the point of having things come out in predictable locations.

Send any New Business requests to the reflector

Please use reflector to review what is in the latest version of the draft. Please send any comments on the new material to the reflector. This will let us get a start on the material before the meeting. Please include anything that needs to be updated or anything you would like discussed

Motion to Adjourn: Steve
Seconded: Brian
Meeting adjourned: 12:06pm EST

Next Meeting:
Feb 9th, 2015 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*~~

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***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***

Call for Essential Patent notes

Adam Ley 12/1/2014

PN, TTL, AN

7348796, METHOD AND SYSTEM FOR NETWORK-ON-CHIP AND OTHER INTEGRATED CIRCUIT
ARCHITECTURES, DAFCA INC.

Steve Sunter 11/17/2014

1. US 7610532 "Serializer/de-serializer bus controller interface" Avago, granted 2009
2. US 7739567 "Utilizing serializer-deserializer transmit and receive pads for parallel scan test data" Avago, granted 2010
3. US 8543876 "Method and apparatus for serial scan test data delivery" Altera, granted 2014

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