

Date – 01/13/2014

Attendees: CJ Clark, Adam Ley, Bill Tuthill, Bob Gottlieb, Brian Turmelle, Craig Stephan, Dave_Armstrong, Dharma Konda, Dwayne Burek, Frans de Jong, Heiko Ehrenburg, Gobinathan Athimolom, Gurgen Harutyunyan, Ismed Hartanto, Josh Ferry, Jon Colburn, Marc Hutner, Mike Ricchetti, Tapan J Chakraborty, Teresa McLaurin, Zahi Abuhanmdeh,

Absent with Excuse:

Not Present for ¾ of meeting: Philippe Lebourg, Steve Sunter

Missing: Bill Huott, Carol Pyron, Jim Wilson, Kent Ng, Kevin Gorman, Saman Adham, Tom Waayers,

Agenda:

- 1) Patent Slides
- 2) Review of 1149.1 broadcast
 - a. Multicores are tested via scan architecture. Bits in the test data registers enable/disable broadcast.
- 3) BSDL Attributes
- 4) New Business

Meeting Called to order at 11:06 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

Broadcast/Multicore support

Use of Wrapper Serial Port (WSP) to select your core

Also use multiple selects of the WSP to select multiple cores.

Not describing inside the 1149.10 proposal specific packets to talk to multiple cores.

Only the architecture.

Dwayne – not clear from diagram that you can observe all SO's

CJ – figure is in 1149.1. Limitation of 1149.1 is only a single SO. In 1149.10 you can observe more than one thing. Wouldn't need selector. Can have multiple SO's coming back to the packet encoder.

Dave – Gating blocks in diagram.. Are they programmable? Can you just enable the first core to be the core of interest.

CJ – Yes.. Gate_WSP a register controls gating to select 1 or more cores that are present.

Group seems comfortable with side and idea.

BSDL Attributes

Describe encodings in BSDL file

In future encoding standards may change. If they are in the BSDL it adds more flexibility.

Dave - "Out of order packets" is missing in the BSDL. Would it make sense to add "packet ID" or "Out of Order" support into BSDL.

CJ - if the standard doesn't support Out of Order then why add to BSDL.

Dave - not sure if coding the BSDL or attributes of interface. Reason to add to the BSDL, is that some encoding standards support out of order. And will be coming up more in the future. If it is in the BSDL maybe in the future we can support as well.

CJ - OK. Will put it in the list of potential attributes. Doesn't see that it is probable that we will be able to support anything out of order since there is no memory storage.

Maybe we leave it as a BSDL extension.

Discussion on 8b/10b encoding and 64/66 Encoding and Special characters (Start, Terminate, K, Error, Stop, Resume)

Error character could be a quick way for the tester to know that there is a problem.

128/130 encoding would be similar to the 64/66 encoding. But more bytes added on to word. Should be compatible with 64/66

Frans - 0b01 (Start) is a bit that always there?

CJ - Yes. 64/66 has sync preamble that has start symbol

Frans - Would we need more decoding space for tests?

CJ - space is large enough. We could use an order set if necessary.

CJ - these characters at the moment seem sufficient.

CJ - We can describe the format of the frame by using the special character and listing these in the BSDL.

In the BSDL we would supply the un-encoded value in the attribute. The tester would use that on the encoder side.

Philippe- Why did the group choose a character vs. a full packet for control?

CJ - since there is no on chip storage we can't use any XON/XOFF packets. Since there isn't any storage the chip is immediately responding back. Can't use the frame approach because you are already in the middle of the frame if you need the tester to stop. Need to be able to communicate with the tester without a way to interrupt the frame. There is no way to close out the frame on the packet back to be able to send one of these control packets.

Philippe - reason for 8b/10b encoding?

CJ - protocol necessary to derive the clock and needed to maintain the dc balance.

Philippe- these characters do not have any error auto correction code?

CJ - would change the running disparity if the bits were dropped.

CJ - the characters are encoded in 8b/10b to maintain running disparity. If the bit was dropped, the running disparity would no longer be what it should be.

Philippe- doesn't allow for Error Correction. Just detection

CJ - correct

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Philippe- we cannot guarantee the success of the stop K Character
CJ – we have a high level of confidence that it will be. But all characters would be risk.
Philippe – we should have better control and higher reliability of the control characters
vs. the data characters.

CJ – this is what SERDES protocols are using and the industry is moving along ok
ignoring that. Not sure how to change how SERDES is done.

Philippe – not thinking about how SERDES done but possible misinterpretation in the
received control characters. What can will be the tester's answer to have it immediately
requesting a resend if the character incorrect.

CJ – all the characters are risk. Even the terminate character. It is an issue that is part of
SERDES protocol that would be the same as PCIexpress and XAUI, etc.

Philippe- that is at the PHY level. We are acting at a high level, i.e. the link level. We
should consider how the errors get processed at the PHY level and how the link level is
aware of that and how it is applied.

New Business.

No New Business

**Motion to Adjourn : Philippe
Seconded : Frans**

Meeting adjourned: 12:00 EST

Next Meeting:

January 20th, 2014 11:00am

Motion Summary

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.*

NOTES:

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

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