

**Date – 4/20/2015**

**Attendees:** CJ Clark, Bill Tuthill, Brian Turmelle, Craig Stephan, Dharma Konda, Dwayne Burek, Gobinathan Athimolom, Jon Colburn, Josh Ferry, Marc Hutner, Mike Ricchetti, Steve Sunter, Tapan J Chakraborty,

**Absent with Excuse:** Bob Gottlieb, 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, Saman Adham, Teresa McLaurin, Philippe Lebourg, Ismed Hartanto, John Braden, Adam Ley, Gurgen Harutyunyan,

**Agenda:**

- 1) Patent Slide
- 2) Unfinished business
  - a. Review Draft v56 with continued support for 32-bit formatting
  - b. Intro to 64b/66b formatting
- 3) New business
- 4) Adjourn

**Meeting Called to order at 11:07 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.

Review of draft version 56 that was uploaded to reflector

Review of changes that were put in to support the 32 bit formatting.

Steve – bandwidth problem when we run on many scan chains. Not when we only access a single chain

CJ – want ability to access many different things. Some tests need only one chain to be accessed. Want to support different configurations.

CJ – interleave size > 1 than you are better off. =1 is not very efficient

Need to add rule (m) for Scan Packet to make sure scan data is padded to 32 bits.

Updated Scan Packet example to show 32 bit boundary

64/66B encoding

Example added to show packets encoded in 64/66B encoding

64 bit data encoded into 66 bit field

Harri Pattern is what the Data WAS

Data converted to Sync (2 bits header) and 64 bits scrambled

Value of 11 and 00 are not permitted for SYNC field

When you have a "10" you get an 8 bit type field and 56 bit data and control

Scrambled data is used to recover clock from data

Walk through of chart from 802.3AE 64/66B used as an example of how data is sent with this encoding

Craig – can you mix and match encodings?

CJ – all chains should be the same encoding in a design.

Dwayne – what would the parallel word from the PHY look like?

CJ – PHY would give you the sync and control character.

Dwayne – data is aligned on 8 bits?

CJ – yes.

CJ – sync and type field will determine the formatting.

Dwayne – control character is part of 64 bits word that the gasket sees.

CJ – type field will define how it groups the following data.

Dwayne – encoding support would be in BSDL?

CJ – correct. Encoding\_1149\_10 attribute

**Reminder that the meeting for next week is canceled due to conflict with VLSI Test Symposium**

**Motion to adjourn: Craig**

**Seconded: Dwayne**

**Meeting adjourned: 12:01 pm EST**

**Next Meeting:**

May 4, 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*~~

## IEEE 1149.10 High Speed JTAG Working Group Minutes

***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***

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