

IEEE 1149.10 High Speed JTAG Working Group Minutes

Date – 06/09/2014

Attendees: CJ Clark, Bill Tuthill, Bob Gottlieb, Brian Turmelle, Craig Stephan, Gobinathan Athimolom, Ismed Hartanto, Jon Colburn, Josh Ferry, Marc Hutner, Saman Adham, Steve Sunter, Tapan J Chakraborty, Teresa McLaurin,

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

Missing: Bill Huott, Carol Pyron, Jim Wilson, Kent Ng, Kevin Gorman, Tom Waayers, Heiko Ehrenburg, Dave Armstrong, Roger Sowada, Dwayne Burek, Gurgen Harutyunyan, Mike Ricchetti, Zahi Abuhanmdeh Adam Ley, Dharma Konda,

Agenda:

- 1) Patent Slide
- 2) Motion to accept Clause 6.6 of version 16 of the draft
(Scan packet definition and explanation)
 - a.) Discussion
- 3) New Business
- 4) Motion to Adjourn

Meeting Called to order at 11:09 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.

Steve Sunter responded about recently becoming aware of a patent that Mentor holds. Will email patent # later. *[from Steve's email to reflector on 6/9/2014 @ 12:06pm after the p1149.10 meeting - For the record, after the last P1149.10 meeting that I attended I became aware that Mentor was recently granted US patent 8726112 entitled, "Scan test application through high-speed serial input/outputs" and it is relevant to P1149.10.]*

Review of Section 6.6

CJ added in remarks from Steve as well as a clarification remark from Bob.

Some minor changes added for clarity

CJ- can't talk to channel with channel select = 0

Steve – so to talk to channel 17 you need to put in zero in channel select word 2 and a correct number in select word 1

CJ – correct

Bob – could have channels in multiple groups?

CJ – correct. Nothing preventing that

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Steve – would have to be in the silicon?

CJ – yes.

Steve – Cycle Count. When you shift data out of SERDES Interface, cycle count is the number of bits in the chain?

CJ – Yes it is the number of bits in scan channel.

Steve – so the PEDDA takes the parallel words out of the SERDES interface and converted into clock cycles .

Steve – if interleave size is 4. And that corresponds to 4 scan bits. So now we need 4 clock cycles to shift the data in before we can handle the next word

Bob – right. Number of shifts we are doing to the scan channel itself.

Burst of cycles is interleave size.

CJ – cycle count is referring to the number of bits you have to shift. If you are sharing and interleaving data, than you have to round robin the shift.

So by interleaving the channels you can make better use of the bandwidth.

Steve – interleave size is the number of bits per scan channel

Bob – the interleave size is basically how much buffering you have in the PEDDA

CJ – telling you how the data has to be formatted in the packet. And implementation on the chip size that each chunk coming in needs to be shifted.

Tapan – is there a limit on how long a payload can be?

CJ – can't be more 2^{32} bits. Number of data bits that follows is limited to a 32 bit word

Tapan – 4Gb in a single packet is not practical.

CJ – agreed.

Bob – cycle depends on interleave size? If we specified an interleave of 4 and cycle count of 20. After we have the first 2 bits we need to go through 4 of our 32 shifts?

CJ – nothing requiring that. But that would be most practical.

Bob – if we stored the whole thing we could pulse at the end?

CJ – yes. Nothing says you need to shift the data immediately when it is received. Could buffer data and shift when you think it is appropriate. Would require buffering

Bob – ok

CJ – are we ready to make a motion to accept clause 6.6 which includes changes that Steve had added?

Brian makes a motion to accept clause 6.6 of the draft v21 subject to further editorial changes

Bob seconded

No further discussion.

Yes - 9

Bill T

Craig S

Jon C

Bob G

Gobinathan

Marc H

Brian T

Ismed

Tapan

No - 0

Abstain -0

Motion passes
9/0/0

Tapan – CRC32 computed on non-control characters
CJ – anything that is not a control character. A control character is something like an IDLE character and would be absorbed by interface. Would not be seen by the CRC logic.

Tapan – data between sop and EOP is computed in the CRC32?
CJ – yes. So we know that the header information is correct. SOPEOP are control characters.

CJ has been making some grammatical corrections.
Will put up the latest version of the draft on the website

No Call for New Business
No new business

Please use reflector to review what is in the Draft.
Please send comments to reflector.
Anything that needs to be fixed. Or comments on State Diagram.

Motion to Adjourn: Bill
Seconded: Marc
Meeting adjourned: 11:54 am EDT

Next Meeting:
June 16th, 2014 11:00am

Motion Summary

1 motions made

Motion to accept clause 6.6 of the draft v21 subject to further editorial changes

Motion passes
9/0/0

Action Items

~~**Bill Tuthill – 10-21-2013 – Add minutes and Attendance spreadsheet to the website.**~~

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~~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/>

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