

# IEEE 1149.4 Mixed-Signal Test Bus Working Group Meeting Minutes

for  
November 14<sup>th</sup>, 2006

8:00 AM – 10:00 AM

## Meeting Agenda:

Time	Topic	Responsibility
8:00-10:00 AM	1. Review the Meeting Minutes for October 26 <sup>th</sup> , 2006	All
	2. Update/Review the following action items: <ul style="list-style-type: none"> <li>a. Revise Kitchen Sink example.</li> <li>b. Revise Straw Dog example.</li> <li>c. ABSDL for STA400 chip.</li> </ul>	Adam Ley Adam Ley Bambang
	3. Review ABSDL Draft.	All
	4. Other issues.	All
10:00 AM	Meeting adjourned.	Bambang

## Meeting Attendees:

Name	Company
Adam Cron	Synopsys
Adam Ley	Asset-Intertech
Ken Parker	Agilent Technologies
Roger Sowada	Honeywell
Marc Hutner	Teradyne
Bambang Suparjo	Mentor Graphics

### 1. Review the Meeting Minutes for October 26<sup>th</sup>, 2006

Before reviewing the meeting minutes, Bambang introduced Roger Sowada from Honeywell and Marc Hutner from Teradyne to the working group. Roger and Marc will become the working group members.

The meeting minutes for October 26<sup>th</sup>, 2006 have been approved, suggested by Adam Cron and seconded by Ken.

## 2. Update/Review on the following action items

- a. Revise Kitchen Sink example.
- b. Revise Straw Dog example.
- c. ABSDL for STA400 chip.

All the above action items are still pending.

## 3. Review ABSDL Standard draft

- a. Describing digital boundary modules (DBMs) for differential receiver.

The discussion was based on the diagram shown in Figure 1 in the Appendix.

- Pin D (representative port) and pin DN (associated port) need to be defined in the grouped port identification.
- The functions for cell 1 and cell 2 that are attached to pins D and DN should be OBSERVE\_ONLY.
- If INTEST is supported, the differential capture cell is cell 3a. The cell function should be INPUT and its reference port is the representative port, where in this example is pin D. The cell can perform both control and observe operations.
- If INTEST is not supported, the differential capture cell is cell 3b. The cell function should be INTERNAL and the cell will be used to observe only. However the cell needs to be defined in MST differential statement. The differential digital record for attribute MST differential statement is shown in ABSDL draft, page 17, line 7;

```
<MST differential digital record>::=<representative port>: <MST differential digital capture cell> .
```

An example of MST differential digital record is shown at line 18 in the same page, “D1:22,”. The example is describing the representative port is D1 and the capture cell number is 22.

The differential analog record can be described using twin group, as shown in ABSDL draft, page 17, line 8. The example at line 20 in the same page, (X1, X1N), is showing that ABMs are attached to differential receiver input pins. The pins are not defined in grouped port identification. There is no capture cell at the output of the differential receiver.

If control and observe DBM cells are attached at D and DN in Figure 1 in the Appendix, those pins will not be defined in both grouped port identification and MST differential statement.

- b. Describing digital boundary modules (DBMs) for differential driver.

An example of differential driver is shown in Figure 2 in the Appendix. The description approach for differential receiver can be applied to differential driver.

- Pin Z (representative port) and pin ZN (associated port) need to be defined in the grouped port identification.
- The functions for cell 1 and cell 2 that are attached to pins Z and ZN should be OBSERVE\_ONLY.
- The function of input cell (cell 3) of the differential driver should be OUTPUT2 and its reference port is the representative port, where in this example is pin Z. The cell can perform both control and observe operations.

- c. Describing digital boundary modules (DBMs) for differential bidirectional.

An example of differential bidirectional is shown in Figure 3 in the Appendix. Combination of description approaches for differential receiver and differential driver can be applied to differential bidirectional case.

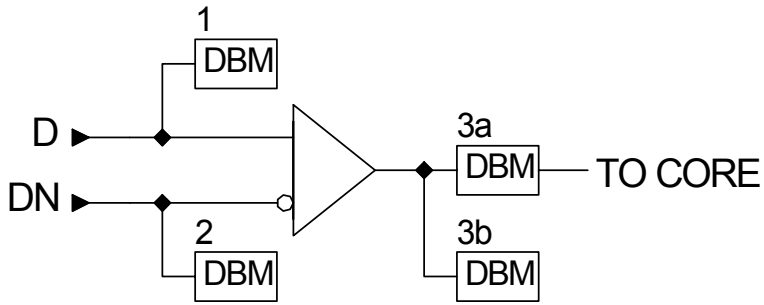
- d. There was a suggestion from Adam Ley to introduce port grouping for digital differential and port grouping for analog differential.
- e. Adam Cron requested comment on the note at line 29, page 14. The note is related to DATA1 and DATA2 cells for TBIC base and TBIC partition, and needs to be refined. The cells' functions are INTERNAL. The group will review the note.

#### **4. Other Issues**

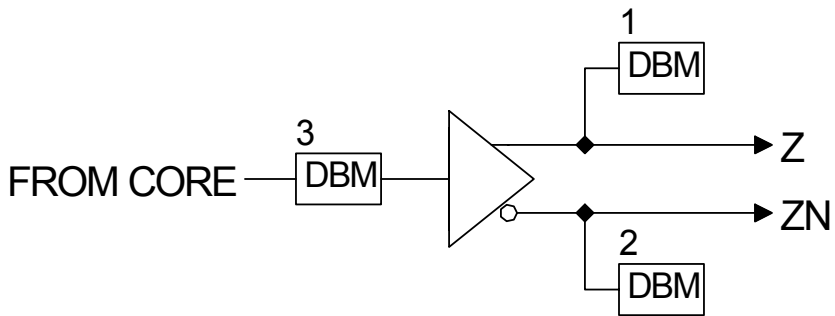
The next meeting will be on November 28<sup>th</sup>, 2006.

5. The meeting adjourned at 10:00 AM.

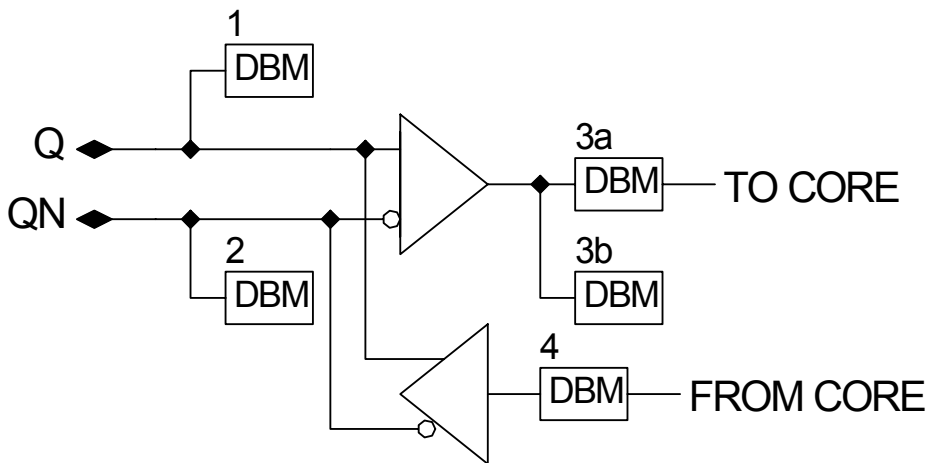
## Appendix



**Figure 1** Differential receiver



**Figure 2** Differential driver



**Figure 3** Differential bidirectional