IEEE 1149.4 Mixed-Signal Test Bus Working Group
Meeting Minutes

for
May 22nd, 2007

7:30 AM – 8:30 AM PDT

Meeting Agenda:

Time	Topic	Responsibility

7:30-8:30 AM	1. Review the meeting minutes for April 24th, 2007
	
	2. Update/Review on ABSDL for:
	
	   a. Straw Dog example.
	   b. STA400 chip.
	
	3. Update/Review on action items for ABSDL documentation draft.
	   a. Review further the following attribute MST_PORT_GROUPING rules:
	     i. 10.4.4.5.2d.
	     ii. 10.4.4.5.2e.
	     iii. 10.4.4.5.2f.
	     iv. 10.4.4.5.2g.
	   b. Provide a note for differential output in attribute MST_PORT_GROUPING.
	   c. Review the overall draft (added agenda).
	
	4. Other issues.
		
		Adam Ley
		Bambang
		
		Adam Ley
		
		Adam Ley
		
		All

8:30 AM	Meeting adjourned	Bambang

Meeting Attendees:

Name	Company
Adam Ley	Asset-Intertech
Adam Cron	Synopsys
Ken Parker	Agilent Technologies
Zafar Quadri	Solectron Corp.
Bambang Suparjo	Mentor Graphics

1.   Review the Meeting Minutes for April 24th, 2007

   a.   The meeting minutes for April 24th, 2007 have been approved, suggested by Ken and seconded by Zafar.

b.   The boundary scan circuitry diagram for the example is still not available. Bambang will provide the diagram.

2.   Update/Review on ABSDL for:

a.   Revise Straw Dog example.

The status is still pending.

b.   ABSDL for STA400 chip.

The status is still pending.

3.   Update/Review on action items for ABSDL documentation draft.

a.   Review further the following attribute MST_PORT_GROUPING rules (Adam Ley):

i.   10.4.4.5.2d.
ii.   10.4.4.5.2e.
iii.   10.4.4.5.2f.
iv.   10.4.4.5.2g.

The rules have been updated as shown below:

i.   10.4.4.5.2d.

If an <MST twin group type> equals **DIFFERENTIAL_DIGITAL**, each member of all <MST differential capture cell list> elements within all corresponding <MST twin group entry> shall appear as the value of a <u>cell number</u> in a <u>cell entry</u> element in the <u>boundary register stmt</u> that is not also contained in the <MST ABM statement>.

ii.   10.4.4.5.2e.

Each <cell entry> that satisfies d) shall have <function> **OBSERVE_ONLY**, **CLOCK**, or, where **INTEST** does not occur as the value of an <instruction name> element in an <opcode description> element of the <instruction opcode stmt>, **INPUT**.
NOTE - All DBM cells referenced in all <MST differential capture cell list> elements shall perform an observe-only function.

iii.   10.4.4.5.2f.

If an <MST twin group type> equals **DIFFERENTIAL_ANALOG**, each member of all <MST differential capture cell list> elements within all corresponding <MST twin

group entry> shall appear as the value of a <u>cell number</u> in a <u>cell entry</u> element in the <u>boundary register stmt</u> that is also contained in the <MST ABM statement>.

iv. 10.4.4.5.2g.

If an <MST twin group type> equals **DIFFERENTIAL_ANALOG**, exactly one of the members of all <MST differential capture cell list> elements within the containing <MST twin group entry> shall appear as the value of exactly one <MST ABM BUS1 cell> element in the <MST ABM statement> (See 7.4.1.1 h) and i)).

Members are requested to review the updated version of the rules and pay more attention on rules 10.4.4.5.2d and 10.4.4.5.2f if statement "each member of the <MST differential capture cell list> shall appear as the value of a <u>cell number</u> in a <u>cell entry</u> element in the <u>boundary register stmt</u>" is redundant with rule 10.4.4.5.2c when describing rules 10.4.4.5.2d and 10.4.4.5.2f.

Rule 10.4.4.5.2c is "Each member of the <MST differential capture cell list> shall appear as the value of a <u>cell number</u> in a <u>cell entry</u> element in the <u>boundary register stmt</u>."

b.   Provide a note for differential output in attribute MST_PORT_GROUPING (Adam Ley).

The note has been provided (shown below) and will be included in the description section of attribute MST_PORT_GROUPING.

Differential outputs will not appear in the **MST_PORT_GROUPING** attribute as they do not have capture cells. System differential outputs that have differential capture cells must be described for test as differential bidirectional (appearing in the BSDL **port** statement as **inout**).

c.   Review the overall draft.

i. Introduction for section 10.4 - BSDL Documentation.

The updated introduction section is shown below:

The purpose of developing BSDL (Boundary Scan Description Language) extensions for IEEE Std 1149.4 is to provide the boundary-scan description of a mixed-signal device designed to be compliant with the IEEE Std 1149.4. The description includes information about the interconnection between cells in the device's boundary-scan register and its pins. It also defines the control structures for the Test Bus Interface Circuit (TBIC) and Analog Boundary Modules (ABM). This information can then be used to generate patterns for interconnect testing and control for discrete component testing at the board level. The extensions are defined such that both digital and mixed-signal interconnect can be tested simultaneously.

Adam Ley will review the last sentence of the introduction.

ii. Statement on Errata Bulletin.

Statement on Errata Bulletin mentioned in the ABSDL documentation draft is actually not being published.

iii. Attribute BOUNDARY_REGISTER for the example in section 10.4.4.5.4.

Attribute BOUNDARY_REGISTER needs to be provided to describe example in Figure 5.7 in section 10.4.4.5.4. Bambang will provide the attribute contents.

4. **Other Issues**

a. The next meeting will be on June 26th 2007 at 7:30 AM PDT.

b. Adam Ley proposes to set up a special meeting to wrap up the documentation. Based on the discussion, the group proposed the following suggestions:

i. The meeting can be in any two days (not restricted to two consecutive days) in the same week.
ii. First day morning – review documentation (teleconference/webex).
iii. First day afternoon – update documentation (offline).
iv. Second day morning – review the updated documentation (teleconference/webex).
v. Second day afternoon – final editing (offline) and broadcast for comments.

5. The meeting adjourned at 8:30 AM PDT.