

IBIS 5.1: An Overview

IBIS Editorial Task Group

Presented by
Michael Mirmak

IBIS Summit
at DAC 2012

June 5, 2012



http://www.eda.org/ibis/editorial_wip/

Agenda

- Why is IBIS 5.1 different?
- Development Background
- Major Changes
- BIRDS in IBIS 5.1
- Technical Changes
- Before and After
- Next Steps & Discussion Topics
- Your Role: Review!

IBIS 5.1 – A Reformatted Document

- IBIS 5.1 doesn't just add new features and clarifications
 - It's entirely different in appearance and format
- Rationale
 - Ease of change submissions (BIRDs)
 - Ease of editing
 - Improved readability
 - Improved usability, with cross-references & hyperlinks

Development Background

- IBIS 5.0 approved in August 2008
- Editorial Task Group began in Nov. 2010
 - Prototypes from TechAmerica's technical writer, Lou Church
- Initial drafts released summer 2011
- Draft 0.155 released May 30, 2012
- Upcoming milestones
 - June 13: expected finalization by the Editorial Task Group
 - June 22: expected introduction at the IBIS Open Forum
 - Editorial Task Group will likely suspend meeting after approval

Major Changes

- Clarifications for AML and new non-AML features
 - <http://www.eda.org/ibis/birds/>
- Appearance based on Microsoft Word*
 - ASCII is no longer used for figures and tables
 - Standards document style has been enforced for headers and body text
- Organization has been unified
 - The general Section structure is preserved
 - Terminology has been made more consistent
 - AML flow, AML Executable files and AML Parameters are now more clearly divided into separate sections (6C, 10 and 10A)

BIRDs in IBIS 5.1

151	<u>IBIS-AMI Modified Reserved Parameters for Jitter/Noise</u>	9-Mar-12
149.1	<u>Usage Out Syntax Correction</u>	17-Feb-12
148	<u>Allowable Model types with IBIS-AMI</u>	6-Jan-12
146	<u>Clarify sample interval for IBIS-AMI</u>	9-Dec-11
143.1	<u>Correcting the rules for AMI Close</u>	7-Oct-11
142	<u>Clarification of [Test Data] and [Test Load] scoping</u>	16-Sep-11
141	<u>[Composite Current] Clarifications</u>	16-Sep-11
140.2	<u>Format Corner and Range Clarification for IBIS-AMI</u>	6-Jan-12
139.2	<u>Reserved Parameters Order</u>	16-Sep-11
138	<u>IBIS-AMI Section 6c Tables Update</u>	16-Sep-11
137.2	<u>AMI parameters in, AMI parameters out, msg Clarifications</u>	16-Sep-11
136	<u>Defining Relationships between Type and Format</u>	16-Sep-11
135.1	<u>Add Boolean to BNF for IBIS-AMI</u>	16-Sep-11
134	<u>AMI Function Return Value Clarification</u>	24-Jun-11
133.1	<u>Model Corner C comp</u>	6-Jan-12
132	<u>Clarification of the Table Format for IBIS AMI</u>	5-Aug-11
130	<u>Crosstalk Clarification With Respect to AMI</u>	24-Jun-11
127.4	<u>IBIS-AMI Typographical Corrections</u>	9-Dec-11
126	<u>IBIS-AMI New Reserved Parameter AMI Version</u>	18-Feb-11
120.1	<u>IBIS-AMI Flow Correction</u>	22-Apr-11
115	<u>Clarifying Min/Typ/Max in IBIS-AMI</u>	22-Oct-10
114.3	<u>IBIS-AMI Definition Clarifications</u>	10-Dec-10
113.3	<u>Weak tie-up or tie-down resistance and voltage</u>	19-Nov-10
112	<u>IBIS-AMI clock times Clarification</u>	11-Jun-10
111.3	<u>Extended Usage of External Series Components in EBDs</u>	24-Apr-09

AMI Technical Changes

- Old AMI files should still work in IBIS 5.1
- Subtle AMI flow changes
 - Previous flow did not support non-LTI models in TX AMI_GetWave
 - For LTI models, the results should not change
 - UseInitOutput has been deprecated
 - Avoids "double-counting" equalization in TX models

Before and After

- Figures and tables have been transformed

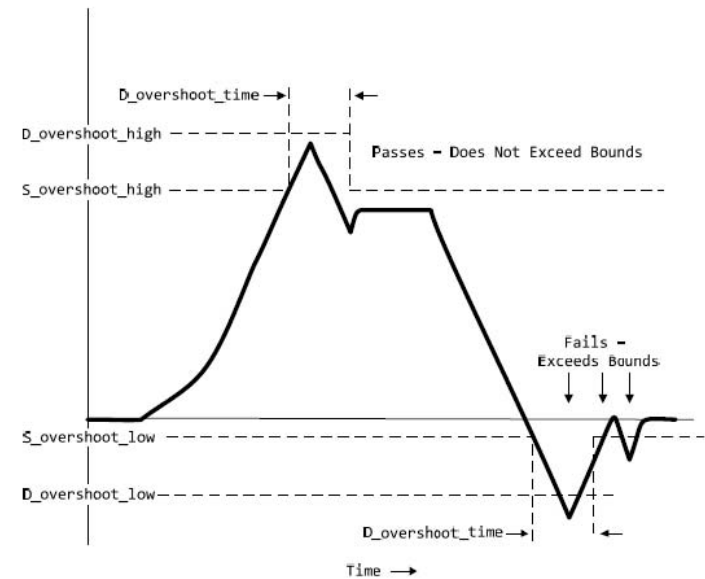
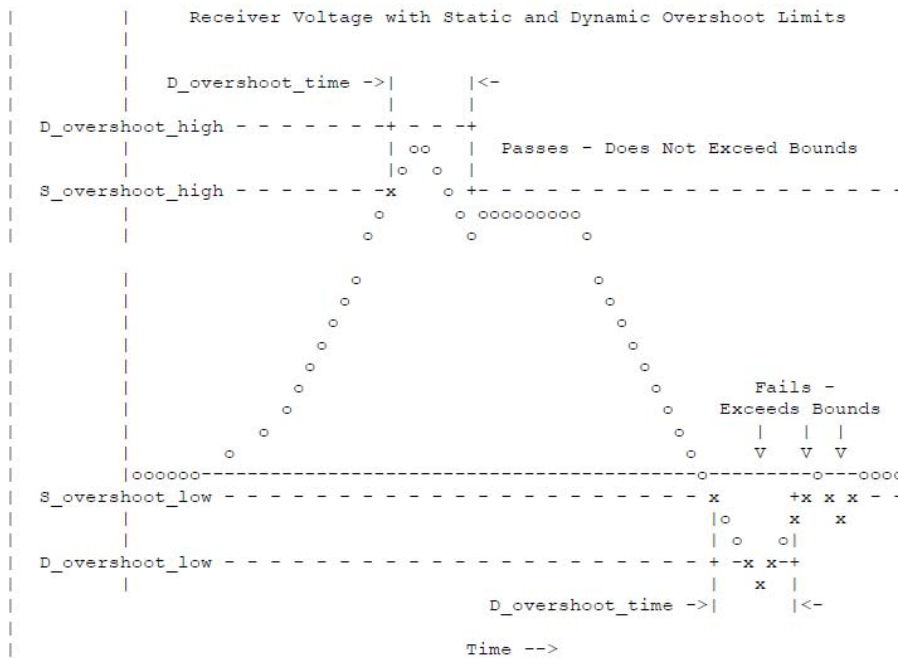


Figure 4 - Receiver Voltage with Static and Dynamic Overshoot Limits

Before...

- The presentation of AMI Parameters...

Tx_DCD:

Tx_DCD (Transmit Duty Cycle Distortion) can be of Usage Info and Out. It can be of Type Float and UI and can have Data Format of Value, Range and Corner. It tells the EDA platform the maximum percentage deviation of the duration of a transmitted pulse from the nominal pulse width. Example of TX_DCD declaration is:

```
(Tx_DCD (Usage Info) (Type Float)
      (Format Range <typ> <min> <max>))
```

Rx-only reserved parameters:

Rx_Clock_PDF and Rx_Receiver_Sensitivity

These reserved parameters only apply to Rx models. These parameters are optional; if the parameters are not specified, the values default to "0". If specified, they must be in the following format:

```
(<parameter_name> (Usage <usage>) (Type <data_type>)
      (Format <data format>) (Default <values>)
      (Description <string>))
```

... and After

■ The presentation of AMI Parameters...

Parameter: **Tx_DCD**

Required: No

Descriptors:

Usage: Info, Out

Type: Float, UI

Format: Value, Range, Corner, List, Increment, Steps

Default: <numeric_literal>

Description: <string_literal>

Definition: Tx_DCD (Transmit Duty Cycle Distortion) tells the EDA tool the maximum deviation of the duration of a transmitted pulse as a fraction of the nominal pulse width. Entries are assumed to be in units of seconds when declared as Type Float.

Usage Rules:

Other Notes:

Examples:

```
(Tx_DCD (Usage Info) (Type Float)
  (Range 2e-12 1e-12 3e-12))
```

Next Steps & Discussion Topics

- Future versions will renumber the sections to avoid names such as 10A, 6B, etc.
- How should BIRDs after IBIS 5.1 be written?
 - ~15 BIRDs are proposed for *after* 5.1
 - May need re-writing using IBIS 5.1 as a baseline
- Is the next version IBIS 6.0?
 - Any IBIS 5.2 would be for standardization only
 - Move to date codes (e.g., IBIS 2012.09)?

Your Role: Review!

- Two to three IBIS Open Forum meetings are expected to complete review
- We need your eyes to ensure success!
 - Is the document technically correct?
 - Is it readable? Usable? Improved over 5.0?

Watch for the IBIS 5.1 draft and please provide comments!

... and Thanks!

- Thanks to the IBIS Editorial Task Group for their hard work in creating this document
 - Special recognition to our most active reviewers
 - Radek Biernacki
 - Lou Church
 - Walter Katz
 - Arpad Muranyi
 - Bob Ross
 - Randy Wolff
- ... and to the IBIS community for their patience and support!

Q/A