

ModelTypeBIRD_1.txt

BIRD ID#: ???
ISSUE TITLE: Allowable Model_types with IBIS-AMI
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DATE REVISED:
DATE ACCEPTED BY IBIS OPEN FORUM:

STATEMENT OF THE ISSUE:

The IBIS 5.0 specification allows [Model]s of any Model_type to contain an [Algorithmic Model] keyword. However, it really does not make sense to use the [Algorithmic Model] keyword with certain Model_types. The IBIS specification needs to define some rules about what types of [Model]s are allowed to contain the [Algorithmic Model] keyword.

STATEMENT OF THE RESOLVED SPECIFICATIONS:

On pg. 142 replace these lines:

| Usage Rules: The [Algorithmic Model] keyword must be positioned within a
| [Model] section and it may appear only once for each [Model]
| keyword in a .ibs file. It is not permitted under the
| [Submodel] keyword.

with these lines:

| Usage Rules: The [Algorithmic Model] keyword must be positioned within a
| [Model] section and it may appear only once for each [Model]
| keyword in a .ibs file. It is not permitted under the
|* [Submodel] keyword and in [Model]s which are of Model_type
|* Terminator, Series and Series_switch.

ANALYSIS PATH/DATA THAT LED TO SPECIFICATION:

The topic was discussed in the IBIS ATM Task Group teleconference on November 1, 2011 and the decision was made to add verbiage to the IBIS specification to disallow the usage of [Algorithmic Model] in Series, Series_swith and Terminator Model_types.

This decision also reduces the number of keywords and subparameters related to the issues addressed by BIRD 140 regarding the alignment of the min/max corners in IBIS models with the slow/fast corners in IBIS-AMI Format Corner parameters.

ANY OTHER BACKGROUND INFORMATION:

The IBIS v5.0 specification has a flaw associated with the entries of the [Algorithmic Model] keyword, namely that there is no indication for the direction of the algorithmic model that is being pointed to (Tx or Rx). The ambiguities which arise from this flaw for [Model]s of any 3-state or I/O Model_types are not addressed in this BIRD.

The rule for 3-state Model_types should really be that they should only contain transmitter algorithmic models.

I/O Model_types could theoretically contain both transmitter and receiver algorithmic models, but there is no mechanism in the specification which would associate the two types of algorithmic models (Tx or Rx) with the two modes of the I/O buffer model (driving or receiving). Unfortunately there are no known methods to automatically detect the direction of an algorithmic model by the EDA tool.

The current workaround is to split any I/O Model_types into two independent models, an Input model with a receiver algorithmic model and an Output model with a transmitter algorithmic model and list them under a [Model Selector] keyword.

The IBIS Open Forum might want to consider fixing these problems in a later version of the IBIS specification when circumstances make it necessary.
