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Buffer Issue Resolution Document  (BIRD)
BIRD ID#:       {TBD}
ISSUE TITLE:    Clarification of Usage Out and InOut for IBIS AMI.
REQUESTOR:      Arpad Muranyi, Mentor Graphics
DATE SUBMITTED:
DATE REVISED:   April 20, 2011
DATE ACCEPTED BY IBIS OPEN FORUM:

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STATEMENT OF THE ISSUE:

The definition of Usage Out and InOut parameters is unclear as to whether
AMI_Init and AMI_GetWave are required to include all Out and InOut parameters
in the AMI_parameters_out string, and what the simulator does with these
output parameters.

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STATEMENT OF THE RESOLVED SPECIFICATIONS:

On pg. 140 insert after the following lines:


```
|   Usage: (required for model specific parameters)
|     In     Parameter is required Input to executable
|     Out    Parameter is Output only from executable
|     Info   Information for user or EDA platform
|     InOut  Required Input to executable.  Executable may return different
|            value.
```

inserted lines:

Algorithmic models may return (Usage Out) or (Usage InOut) parameters in the
AMI_parameters_out argument of either the AMI_Init, or the AMI_GetWave
functions, or both.

Each reserved parameter is described by the specification in detail so that
the model writer and the EDA tool know which function's AMI_parameters_out
argument returns any given parameter, what the meaning and format of the
parameter is and how the EDA tool is expected to handle it.

The meaning of Model_Specific parameters cannot be defined in a similar
manner in the specification. However, EDA tool vendors are strongly
encouraged to collect the information returned by Model_Specific parameters
of (Usage Out) or (Usage InOut) in a database and make it available to the
user. Since each call to the AMI_GetWave function may return a unique value
in the AMI_parameters_out argument, EDA tools are encouraged to build a
matrix for the database in which the parameters are organized in columns and
the values collected from each AMI_GetWave call are placed in the rows.

While EDA vendors may use techniques that best suit their product, it is
expected that (Type String) parameters will be displayed in text display

dialog(s) and/or text editor(s) and numeric and (Type Boolean) parameters
might be post processed and/or displayed in a plotting utility.

Model_Specific parameters **of (Usage Out) or (Usage InOut)** must not be used
for purposes which may alter past, present or future simulation results, **or
simulation inputs** in any way. Algorithmic models are only allowed to
influence simulation results **or inputs** through Reserved_Parameters of (Usage
Out) or (Usage InOut) whose features and requirements are fully described in
this specification.

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ANALYSIS PATH/DATA THAT LED TO SPECIFICATION:

The existing IBIS specification lacks clear definition of Usage Out and
InOut, when they must be included in the AMI_parameters_out string, and how
the simulator is expected to use these outputs.

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ANY OTHER BACKGROUND INFORMATION:

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