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Buffer Issue Resolution Document (BIRD)
BIRD ID#:   {TBD}
ISSUE TITLE: AMI_parameters_out Clarification
REQUESTOR: Arpad Muranyi, Mentor Graphics, Curtis Clark, Ansys
DATE SUBMITTED:
DATE REVISED: June 15, 2011
DATE ACCEPTED BY IBIS OPEN FORUM:

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STATEMENT OF THE ISSUE:

The IBIS 5.0 specification has several problems with the definition of
AMI_parameters_out.

On pg. 186, section 3.1.2.6 doesn't mention whether AMI_parameters_in
and AMI_parameters_out are required for the AMI_Init function, and what
the pointer values should be in the absence of any parameters.

On pg. 189, section 3.2.2.4 says that AMI_parameters_out is optional
for AMI_GetWave, but doesn't spell out what the pointer's value should
be in case the parameter is not used.

The rule for AMI_parameters_in/out for AMI_Init needs to be defined,
and the value of the pointer should also be defined in case the
parameters are not used to eliminate any ambiguity in the specification.

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STATEMENT OF THE RESOLVED SPECIFICATIONS:

On pg. 186, replace these lines:


```
| 3.1.2.6 AMI_parameters (_in and _out)
| ====================================
|
| Memory for AMI_parameters_in is allocated and de-allocated by the EDA
| platform.  The memory pointed to by AMI_parameters_out is allocated and
| de-allocated by the model.  This is a pointer to a string.  All the input
| from the IBIS AMI parameter file are passed using a string that been
| formatted as a parameter tree.
```


with these lines:


```
|* 3.1.2.6 AMI_parameters_in
|* ========================
|*
|* The AMI_parameters_in argument is a pointer to a string.  Memory for the
|* string is allocated and de-allocated by the EDA platform.  All the input
|* from the IBIS AMI parameter file are passed to the algorithmic model using
|* a string that has been formatted as a parameter tree.
|*
|* While the AMI_parameters_in argument must always be present in the
|* AMI_Init function call, it may contain the address of an empty string
|* for algorithmic models which do not use any input parameters.  Null
```

|* pointers are not permitted in AMI_parameters_in.

On pg. 187, insert before these lines:

| 3.1.2.7 AMI_memory_handle

the following lines:

```
|* 3.1.2.7 AMI_parameters_out
|* ==========================
|*
|* The AMI_parameters_out argument is a pointer to a string pointer.  Memory
|* for the string is allocated and de-allocated by the algorithmic model.
|* The model returns a pointer to the string as the contents of this argument.
|* The string must be formatted as a parameter tree, as described in 3.1.2.6.
|* The AMI_Init function may use this string to return information and
|* parameters to the EDA platform.
|*
|* While the AMI_parameters_out argument must always be present in the
|* AMI_Init function call, and the EDA platform must always provide a valid
|* (non-zero) address value in it, algorithmic models are not required to
|* return anything at that address to the EDA platform.  For this reason,
|* the EDA platform must also initialize the memory content at that address
|* to zero (null pointer) prior to calling the AMI_Init function, so that
|* after the execution of the function it can determine whether or not the
|* function returned a valid string pointer at that address.  If the AMI_Init
|* function does not wish to return a parameter string to the EDA platform,
|* it may ignore the address provided in this argument, or it may return a
|* null pointer or a pointer to an empty string at this address to the EDA
|* platform.
|*
```

On pg. 187, replace:

| 3.1.2.7 AMI_memory_handle

with:

| 3.1.2.8 AMI_memory_handle

On pg. 187, replace:

```
| 3.1.2.8 msg (optional)
| ======================
|
| Provides descriptive, textual message from the algorithmic model to the EDA
| platform.  It must provide a character string message that can be used by
| EDA platform to update log file or display in user interface.
|
```

with:

```
|* 3.1.2.9 msg
|* ===========
```

```
|*
|* The msg argument is a pointer to a string pointer.  Memory for the string
|* is allocated and de-allocated by the algorithmic model.  The model returns
|* a pointer to the string as the contents of this argument.  The AMI_Init
|* function may use this string to send a descriptive, textual message to the
|* EDA platform to be displayed in the user interface and/or to be saved in
|* a log file.
|*
|* While the msg argument must always be present in the AMI_Init function
|* call, and the EDA platform must always provide a valid (non-zero) address
|* value in it, algorithmic models are not required to return anything at that
|* address to the EDA platform.  For this reason, the EDA platform must also
|* initialize the memory content at that address to zero (null pointer) prior
|* to calling the AMI_Init function, so that after the execution of the
|* function it can determine whether or not the function returned a valid
|* string pointer at that address.  If the AMI_Init function does not wish to
|* return a message string to the EDA platform, it may ignore the address
|* provided in this argument, or it may return a null pointer or a pointer
|* to an empty string at this address to the EDA platform.
|*
```

On pg. 189, replace these lines:

```
| 3.2.2.4 AMI_parameters_out (optional)
| ====================================
|
| A handle to a 'tree string' as described in 1.3.1.2.6.  This is used by the
| algorithmic model to return dynamic information and parameters.  The memory
| for this string is to be allocated and deleted by the algorithmic model.
|
```

with these lines:

```
|* 3.2.2.4 AMI_parameters_out
|* ==========================
|*
|* The AMI_parameters_out argument is a pointer to a string pointer.  Memory
|* for the string is allocated and de-allocated by the algorithmic model.
|* The model returns a pointer to the string as the contents of this argument.
|* The string must be formatted as a parameter tree, as described in 3.1.2.6.
|* The AMI_GetWave function may use this string to return dynamic information
|* and parameters to the EDA platform.
|*
|* While the AMI_parameters_out argument must always be present in the
|* AMI_GetWave function call, and the EDA platform must always provide a valid
|* (non-zero) address value in it, algorithmic models are not required to
|* return anything at that address to the EDA platform.  For this reason,
|* the EDA platform must also initialize the memory content at that address
|* to zero (null pointer) prior to calling the AMI_GetWave function, so that
|* after the execution of the function it can determine whether or not the
|* function returned a valid string pointer at that address.  If the
|* AMI_GetWave function does not wish to return a parameter string to the
|* EDA platform, it may ignore the address provided in this argument, or it
|* may return a null pointer or a pointer to an empty string at this address
|* to the EDA platform.
|*

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```

ANALYSIS PATH/DATA THAT LED TO SPECIFICATION:

The changes documented in this BIRD are based on the discussions
which took place in the IBIS ATM teleconference on May 17, 2011 and in
subsequent emails on the ATM email reflector.

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ANY OTHER BACKGROUND INFORMATION:

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