**BUFFER ISSUE RESOLUTION DOCUMENT (BIRD)**

**BIRD NUMBER:** 162.1

**ISSUE TITLE:** Change to Usage “Info, Out” for AMI Jitter and Noise Parameters

**REQUESTOR:**  Bob Ross, Teraspeed Consulting Group; Walter Katz, SiSoft; Fangyi Rao, Agilent Technologies

**DATE SUBMITTED:** July 9, 2013

**DATE REVISED:** July 16, 2013

**DATE ACCEPTED BY IBIS OPEN FORUM:** August 9, 2013

**STATEMENT OF THE ISSUE:**

All of the Jitter and Noise Reserved Parameters described in BIRD123.5 with Usage Info should have their Usage changed to Usage “Info, Out”. In addition, a Note needs to be added to the Jitter and Noise section to describe how Usage Out is handled.

**ANALYSIS PATH/DATA THAT LED TO SPECIFICATION:**

This BIRD based on a concern for keeping the Reserved Parameters Tx\_Jitter and Tx\_DCD Usage rules that same as in IBIS Version 5.1 and also allowing for future expansion to make all of the Jitter and Noise parameters serve as dependent parameters.

**ANY OTHER BACKGROUND INFORMATION:**

This change was discussed in e-mails and at the July 9, 2013 ATM meeting.

Further modifications were made based on e-mails and discussion at the July 16, 2013 ATM meeting

Add this Note near the beginning of the Jitter and Noise section:

"Note:

If the Jitter and Noise parameters are Usage Info, the EDA tool shall obtain their values from the AMI parameter (.ami) file, optionally through a user interface if user selections are available or needed.

If these parameters are Usage Out, the EDA tool shall use the values returned by the AMI\_Init function. It is the model maker‘s responsibility to make sure that the AMI\_Init function returns the appropriate value in these parameters to the EDA tool to achieve successful simulations.

The model’s AMI\_GetWave function may also return values in these parameters to the EDA tool, and these values are not required to be the same as the values previously returned by the AMI\_Init function. The EDA tool may report the values returned by the AMI\_GetWave function to the user, but these values shall not be used by the EDA tool to modify or calculate parameter values passed into simulation models in subsequent function calls or simulations, or to modify or calculate the simulation results in any way."

For all of the Jitter and Noise Parameters, and where the Usage Descriptor is not already set to “Info, Out”, change the Descriptor to:

*Descriptors*:

Usage: Info, Out

This change applies to the following parameters: Tx\_Jitter, Tx\_Dj, Tx\_Rj, Tx\_Sj, Tx\_DCD, Tx\_Sj\_Frequency, Rx\_Clock\_PDF, Rx\_Clock\_Recovery\_Mean, Rx\_Clock\_Recovery\_Dj, Rx\_Clock\_Recovery\_Rj, Rx\_Clock\_Recovery\_Sj, Rx\_Clock\_Recovery\_DCD, Rx\_Dj, Rx\_Rj, Rx\_Sj, and Rx\_DCD. The Usage for Rx\_Receiver\_Sensitivity and Rx\_Noise is already documented correctly.

In the Jitter and Noise Table, change

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Reserved Parameter** | **General Rules** | | **Allowed Usage** | | | |
| **Required** | **Default** | **Info** | **In** | **Out** | **InOut** |
| Tx\_Jitter | No | No Jitter | X |  | X3 |  |
| Tx\_Dj | No | 0 | X |  |  |  |
| Tx\_Rj | No | 0 | X |  |  |  |
| Tx\_Sj | No | 0 | X |  |  |  |
| Tx\_DCD | No | 0 | X |  | X3 |  |
| Tx\_Sj\_Frequency | No | Undefined | X |  |  |  |
| Rx\_Receiver\_Sensitivity | No | 0 | X |  | X |  |
| Rx\_Clock\_PDF | No | Clock Centered | X |  |  |  |
| Rx\_Clock\_Recovery\_Mean | No | 0 | X |  |  |  |
| Rx\_Clock\_Recovery\_Dj | No | 0 | X |  |  |  |
| Rx\_Clock\_Recovery\_Rj | No | 0 | X |  |  |  |
| Rx\_Clock\_Recovery\_Sj | No | 0 | X |  |  |  |
| Rx\_Clock\_Recovery\_DCD | No | 0 | X |  |  |  |
| Rx\_Dj | No | 0 | X |  |  |  |
| Rx\_Rj | No | 0 | X |  |  |  |
| Rx\_Sj | No | 0 | X |  |  |  |
| Rx\_DCD | No | 0 | X |  |  |  |
| Rx\_Noise | No | 0 | X |  | X |  |

To:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Reserved Parameter** | **General Rules** | | **Allowed Usage** | | | |
| **Required** | **Default** | **Info** | **In** | **Out** | **InOut** |
| Tx\_Jitter | No | No Jitter | X |  | X |  |
| Tx\_Dj | No | 0 | X |  | X |  |
| Tx\_Rj | No | 0 | X |  | X |  |
| Tx\_Sj | No | 0 | X |  | X |  |
| Tx\_DCD | No | 0 | X |  | X |  |
| Tx\_Sj\_Frequency | No | Undefined | X |  | X |  |
| Rx\_Receiver\_Sensitivity | No | 0 | X |  | X |  |
| Rx\_Clock\_PDF | No | Clock Centered | X |  | X |  |
| Rx\_Clock\_Recovery\_Mean | No | 0 | X |  | X |  |
| Rx\_Clock\_Recovery\_Dj | No | 0 | X |  | X |  |
| Rx\_Clock\_Recovery\_Rj | No | 0 | X |  | X |  |
| Rx\_Clock\_Recovery\_Sj | No | 0 | X |  | X |  |
| Rx\_Clock\_Recovery\_DCD | No | 0 | X |  | X |  |
| Rx\_Dj | No | 0 | X |  | X |  |
| Rx\_Rj | No | 0 | X |  | X |  |
| Rx\_Sj | No | 0 | X |  | X |  |
| Rx\_DCD | No | 0 | X |  | X |  |
| Rx\_Noise | No | 0 | X |  | X |  |