**BUFFER ISSUE RESOLUTION DOCUMENT (BIRD)**

**BIRD NUMBER:** 180

**ISSUE TITLE:** Require Unique Pin Names in [Pin]

**REQUESTOR:**  Mike LaBonte, Signal Integrity Software

**DATE SUBMITTED:** February 17, 2016

**DATE REVISED:**

**DATE ACCEPTED:**  October 14, 2016

**STATEMENT OF THE ISSUE:**

The IBIS 6.1 specification makes no statement regarding uniqueness of pin names in the first column of a [Pin] section. It is conceivable that two lines in a [Pin] section could have the same pin name, and IBISCHK6 would not complain (see background information below). Should duplicate pin names appear, the handling of data on the two lines would be indeterminate, a problem if the rest of the the lines’ contents differ.

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

The IBIS specification must either prohibit duplicate pin names or say how to handle them. It is conceivable but not recommended that exact duplicate [Pin] lines could be ignored. Differing sets of RLC values for a single pin name must not be allowed. Differing model names for a pin name must not be allowed, as this would purport to duplicate the function of [Model Selector].

**ANY OTHER BACKGROUND INFORMATION:**

In the 10 February 2016 IBIS Interconnect Task group meeting Walter Katz reported that IBISCHK6 and previous IBISCHK executables do in fact generate an ERROR when duplicate [Pin] names exist, even though the specification does not call for this. The error message is:

|  |  |  |
| --- | --- | --- |
| **E0606** | PIN\_ERR\_6 | ( line {lineNum} ) - Duplicate Pin '{pinName}'. |

Additionally, the [Pin] Usage Rules fail to list CIRCUITCALL as a reserved model name. This is corrected in the proposed change.

**PROPOSED CHANGES:**

Change:

Keyword: **[Pin]**

*Required:* Yes

*Description:* Associates the component’s I/O models to its various external pin names and signal names.

*Sub-Params:* signal\_name, model\_name, R\_pin, L\_pin, C\_pin

*Usage Rules:* All pins on a component must be specified. The first column must contain the pin name. The second column, signal\_name, gives the data book name for the signal on that pin. The third column, model\_name, maps a pin to a specific I/O buffer model or model selector name. Each model\_name must have a corresponding model or model selector name listed in a [Model] or [Model Selector] keyword below, unless it is a reserved model name (POWER, GND, or NC).

to:

Keyword: **[Pin]**

*Required:* Yes

*Description:* Associates the component’s I/O models to its various external pin names and signal names.

*Sub-Params:* signal\_name, model\_name, R\_pin, L\_pin, C\_pin

*Usage Rules:* All pins on a component shall be specified. The first column shall contain the pin name, which shall not be repeated within the same [Pin] keyword for a [Component]. The second column, signal\_name, gives the data book name for the signal on that pin. The third column, model\_name, maps a pin to a specific I/O buffer model or model selector name. Each model\_name shall have a corresponding model or model selector name listed in a [Model] or [Model Selector] keyword below, unless it is a reserved model name (POWER, GND, CIRCUITCALL, or NC).