**BUFFER ISSUE RESOLUTION DOCUMENT (BIRD)**

**BIRD NUMBER:** 153.1

**ISSUE TITLE:** Parameter Tree Keyword

**REQUESTOR:**  Arpad Muranyi, Mentor Graphics

**DATE SUBMITTED:** June 19, 2012

**DATE REVISED:** March 14, 2013

**DATE ACCEPTED BY IBIS OPEN FORUM:**

**STATEMENT OF THE ISSUE:**

BIRDs 117 and 118 introduce the concept of including Parameter Trees in .ibs files. In order to mark the beginning and end of these Parameter Trees, a new keyword pair is needed.

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

BIRD 153.1 was issued to update the changes proposed in BIRD 153 to be based on the IBIS v5.1 Specification and to be consistent with its new format.

**ANY OTHER BACKGROUND INFORMATION:**

*Keywords:* [Begin Parameter Trees] and [End Parameter Trees]

*Required:* No

*Description:* Used to identify the beginning and end of parameter trees in .ibs files.

*Sub-Params:* None

*Usage Rules:* These keywords are scoped at the top keyword hierarchy level, the same level as the [Component] keyword, so that any keyword in an IBIS file may have access to the parameter trees enclosed within them.

Only one [Begin Parameter Trees] and [End Parameter Trees] keyword pair may exist in any .ibs file. The [Begin Parameter Trees] and [End Parameter Trees] keyword pair may be placed before the first [Component] or before the [End] keyword.

Any number of parameter trees may be placed between the [Begin Parameter Trees] and [End Parameter Trees] keywords. The syntax of the parameter trees enclosed by these keywords must follow the rules of the tree syntax described in Section ??? of this specification.

Context specific tree rules:

Parameter trees in .ibs files and external parameter files are not required to contain the Reserved\_Parameters or Model\_Specific branches.

Usage may only have the values of In and Info.

In:

The value of the parameter in the parameter tree is passed to the parameter(s) named in the Parameters or Converter\_Parameters subparameter(s) of the [External Model] or [External Circuit] keywords when referencing a parameter name in a parameter tree.

Info:

Controls setting up the values of In parameters, for example used in dependency tables.

Example:

[Begin Parameter Trees]

(TreeRootName

 (Description "IBIS-ISS model illustration")

 (TstoneFile (Usage In)(List "Typ.s4p" "Min.s4p" "Max.s4p")(Type String))

 (Vinh (Usage In)(List 0.8 0.7 0.9)(Type Float))

 (Vinl (Usage In)(List 0.2 0.1 0.3)(Type Float))

 (R1 (Usage In)(Range 50 45 55)(Type Float))

 (Trf (Usage In)(Value 10.0e-12)(Type Float))

)

[End Parameter Trees]