

BIRD ID#: ISS Package
ISSUE TITLE: IBIS Parameters for ISS Package Modeling
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STATEMENT OF THE ISSUE:

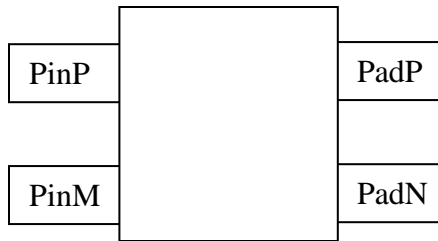
IBIS 5.0 package models do not have sufficient accuracy to model today's packages.

This BIRD proposes the following new IBIS keywords to support use of IBIS-ISS to define package models.

ISS_Package, [ISS_Packages], [End ISS Packages], [ISS Package],
[End ISS Package], **ISS_Package_Subckt, ISS_Package_Arguments**

ISS Package AMI Parameters

The AMI parameters listed below are of Type String and Usage Info. They define the name of the file containing the ISS Subckt and how the subckt is defined in the model.



ISS Differential Package Circuit



ISS Single Ended Package Circuit

AMI Parameters to define the ISS Package Subckt usgae.

"ISS_Package_File": Name of file containing the ISS subckt.

- This file shall in the same directory as the .ibs file.

"ISS_Package_Subckt": The .subckt name defined the subckt call.

```
.subckt <name> <PinP|PinN|PadP|PadN|Pin> < PinP|PinN|PadP|PadN|Pad>  
+ [<PinP|PinN|PadP|PadN> < PinP|PinN|PadP|PadN>]  
+ [Length=AMI (Length) Zo=AMI (Zo) ]
```

"ISS_Package_Arguments": The .subckt argumenta defined the subckt call.

```
.subckt <name> <PinP|PinN|PadP|PadN|Pin> < PinP|PinN|PadP|PadN|Pad>  
+ [<PinP|PinN|PadP|PadN> < PinP|PinN|PadP|PadN>]  
+ [Length=AMI (Length) Zo=AMI (Zo) ]
```

Notes:

ISS_Package_Arguments must have the following ports in any order
PinP PinN PadP PadN Pin Pad

ISS Package Models in .ibs Files

```
[Component] my_ibis_component
ISS_Package component_package
[Pin] signal_name      model_name  R_pin L_pin C_pin
1   rx1_p    rx        NA    NA    NA
2   rx1_n    rx        NA    NA    NA
3   rx2_p    rx        NA    NA    NA
4   rx2_n    rx        NA    NA    NA
5   tx1_p    tx        NA    NA    NA
6   tx2_n    tx        NA    NA    NA
|
[Diff Pin] inv_pin  vdiff tdelay_typ tdelay_min tdelay_max
1 2
3 4
5 6
|
[Model] tx
Model_type Output
...
ISS_Package tx_package Td=AMI (Length) Zo=AMI (Zo)
...
[Model] rx
Model_type Input
...
ISS_Package rx_package Td=AMI (Length) Zo=AMI (Zo)
...
...
...
```

Defining ISS Packages

```
[ISS Packages]
| Package model used by [Model] tx
[ISS Package] tx_package
ISS_Package_File Package.iss
ISS_Package_Subckt tx_package
ISS_Package_Arguments PinP PinN PadP PadN Td=AMI(Td) Zo= AMI(Zo)
[End ISS Package]
| Package model used by [Model] rx
[ISS Package] rx_package
ISS_Package_File Package.iss
ISS_Package_Subckt rx_package
ISS_Package_Arguments PinP PinN PadP PadN Td=99ps Zo=51
[End ISS Package]
| Package model for pins 1 and 2
[ISS Package] component_package
ISS_Package_File Package.iss
ISS_Package_Subckt Diff_Pins_1_2
ISS_Package_Arguments Pin.1 Pin.1 Pad.1 Pad.2 Td=99ps Zo=51
[End ISS Package]
| Package model for pins 3 and 4
  [ISS Package] component_package
ISS_Package_File Package.iss
ISS_Package_Subckt Diff_Pins_3_4
ISS_Package_Arguments Pin.3 Pin.4 Pad.3 Pad.4 Td=99ps Zo=51
[End ISS Package]
| Package model for pins 5 and 6
  [ISS Package] component_package
ISS_Package_File Package.iss
ISS_Package_Subckt Diff_Pins_5_6
ISS_Package_Arguments Pin.5 Pin.5 Pad.6 Pad.6 Td=99ps Zo=51
[End ISS Package]
| Default Differential Package model
[ISS Package] component_package
ISS_Package_File Package.iss
ISS_Package_Subckt Diff_Pins_Default
ISS_Package_Arguments PinH PinL PadH PadL Td=99ps Zo=51
[End ISS Package]
| Default Single Ended Package model
[ISS Package] component_package
ISS_Package_File Package.iss
ISS_Package_Subckt Pin_Default
ISS_Package_Arguments Pin Pad Td=99ps Zo=51
[End ISS Package]
|
| Package models for pins 1 through 4
[ISS Package] component_package
ISS_Package_File Package.iss
ISS_Package_Subckt Coupled_1_to_4
ISS_Package_Arguments Pin.1 Pin.2 Pin.3 Pin.4 Pad.1 Pad.2 Pad.3 Pad.4
[End ISS Package]
```

```

|
| Package models for complete package with power and ground
[ISS Package] component_package
ISS_Package_File Package.iss
ISS_Package_Subckt Coupled_Power_1_to_6
ISS_Package_Arguments Pin.1 Pin.2 Pin.3 Pin.4 Pin.5 Pin.6
                        Pad.1 Pad.2 Pad.3 Pad.4 Pad.5 Pad.6
                        Pin_Power Pin_Ground Pad_Power Pad_Ground

[End ISS Package]
[End ISS Packages]
[End]

```

An alternative, equivalent and more IBIS like way of defining Package Models:

```

[ISS Packages]
| Package model used by [Model] tx
[ISS Package] tx_package
ISS_Package_File Package.iss
ISS_Package_Subckt tx_package
ISS_Package_Arguments
Port 1 PinP
Port 2 PinN
Port 3 PadP
Port 4 PadN
Parameter Td AMI(Td)
Parameter Zo 50 45 55 | Three values means Typ Slow Fast
[End ISS Package]
|
| Package model used by [Model] rx
[ISS Package] rx_package
ISS_Package_File Package.iss
ISS_Package_Subckt rx_package
ISS_Package_Arguments
Port 1 PinP
Port 2 PinN
Port 3 PadP
Port 4 PadN
Parameter Td 99ps
Parameter Zo 51
[End ISS Package]
[End ISS Packages]

```


ANALYSIS PATH/DATA THAT LED TO SPECIFICATION

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ANY OTHER BACKGROUND INFORMATION:

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