

# IBIS Status and Future Direction



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<http://www.eda.org/ibis/>

<http://www.eigroup.org/ibis/>

# Agenda

- ★ Status of IBIS & ICM Today
- ★ Short-term Direction of IBIS
- ★ IBIS Timeline
- ★ Long-term Issues
- ★ What is JEITA's Opinion
- ★ A Note of Thanks
- ★ Questions
- ★ Backup – ICM and IBIS Links



# Status of IBIS & ICM



## ★ IBIS

- IBIS 4.1 parser complete!
- Free executables are now available on-line
- Source code licenses may be purchased from the IBIS Open Forum

## ★ ICM

- IBIS Interconnect Modeling Specification
- ICM 1.1 draft specification in review
  - ★ Includes frequency-dependent RLGC
  - ★ Expecting approval vote before June 2005
- ICM 1.1 parser now available on-line

# Short Term Direction



- ★ Over the next six months...
  - Complete ICM 1.1 approval
    - ★ Vote by IBIS membership
    - ★ Ballot by standards organizations
  - Complete IBIS 4.0 Cookbook
    - ★ A free guide to making IBIS models
    - ★ Improves on IBIS 2.1 Cookbook (1997)
    - ★ Describes extraction of differential buffer data (examples: Serial ATA, PCI Express®)
    - ★ Adds details on use of 3.2, 4.0 keywords (examples: [Diff Pin], [Driver Schedule])
  - Complete draft of IBIS 4.2
    - ★ What should it include? See “Long Term Direction”

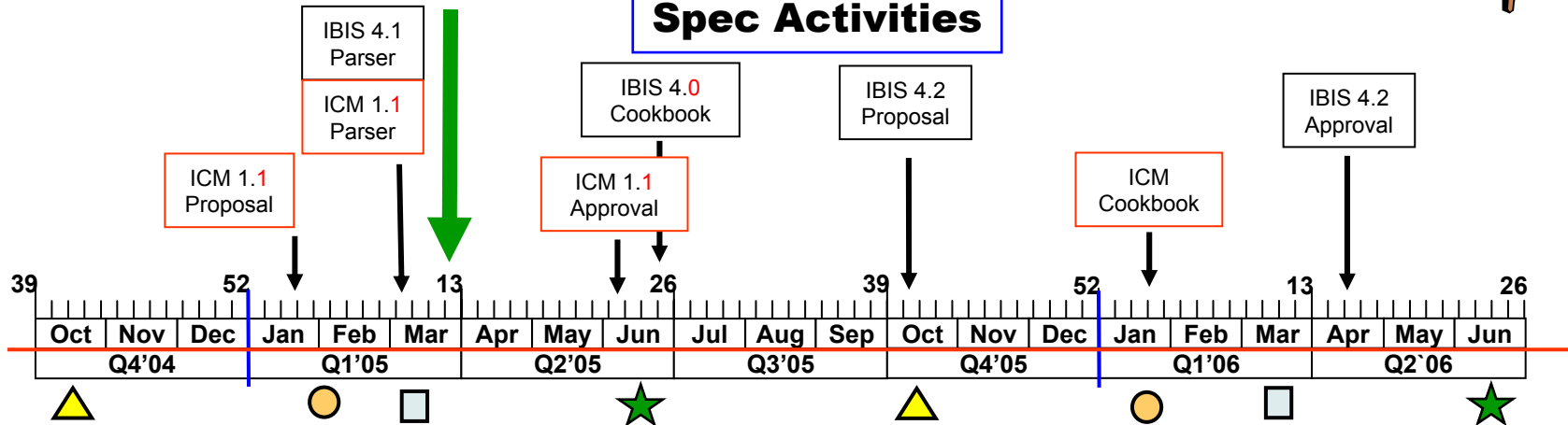
# IBIS Timeline



## Not Shown

- July, 2002: IBIS 4.0 approved
- Sep., 2003: ICM 1.0 approved
- Jan., 2004: IBIS 4.1 approved

## Spec Activities



## Summits

- ★ DAC
- DATE
- DesignCon
- △ DesignCon East

*E-Roadshows on hold*

*Regular summits  
in Asia starting  
in '06?*

# Short Term Direction

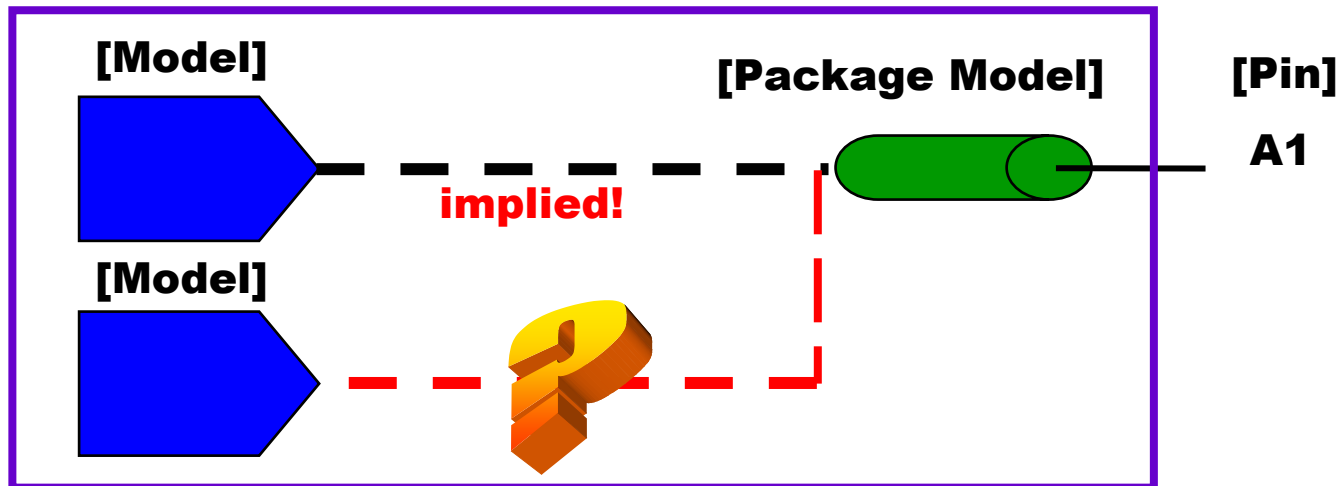


- ★ BIRDS Under Consideration
  - “**B**uffer **I**ssue **R**esolution **D**ocument”
  - A proposal to change the IBIS specification (add features, correct errors)
  - BIRD94: Clarifications on [Diff Pin] Parameters
    - ★ Corrects text, examples for [Diff Pin] keyword
  - BIRD95: Power Integrity Analysis Using IBIS
    - ★ Adds table for current from source through buffer
    - ★ Adds RLGC values to describe buffer power-ground path
  - BIRD97: Gate Modulation Effect
    - ★ New parameters change I-V tables as supply voltages change
    - ★ Example: Power\_coeff\_typ = 0.8
    - ★ I-V table reduced by 8% for a 10% change in supply voltage

# Long Term Issues



- ★ Link between ICM and IBIS
  - Need ICM for best description of power rail current data (BIRD95)
  - Many users want ICM for package modeling
  - Creating new syntax for ICM link is very difficult!
    - ★ IBIS 4.0 assumptions are very limited
    - ★ Each [Model] has ONLY one pin – no pad name!
    - ★ Futures Committee developing working proposal



# Long Term Issues



## ★ IBIS 4.1 Cookbook

- IBIS community needs guidance on behavioral modeling with AMS
- IBIS 4.1 keywords can be confusing

## ★ IBIS 4.2: What should it include?

- Need power delivery (BIRD95, BIRD97) features
- Need ICM-IBIS links soon
- User-defined measurements for [Ext. Circuit]
  - ★ Many tools need these for SI analysis
- Major changes will increase cost of a new parser



# Long Term Issues



- ★ SPICE Macromodeling
  - What is the new syntax?
  - Can a proposal be developed quickly?
  - How does it relate to AMS?
  - Can it be more successful than transistor SPICE?
- ★ Can IBIS 5.0 be completely new?
  - IBIS 1.1-4.0 syntax is very limiting
    - ★ Examples: Package format, [Diff Pin], no pad names
  - Should IBIS 5.0 be compatible with 1.1 – 4.0?

What does the IBIS baseline need to be  
for the next five years?

We must live with our choices for a long time!

# What is JEITA's Opinion?



*What are the issues of greatest importance to the IBIS community in Japan?*

この日もありがとうございます



もうも ありがとうございます *JEITA*

We deeply appreciate your feedback  
and support of IBIS!



# QUESTIONS?

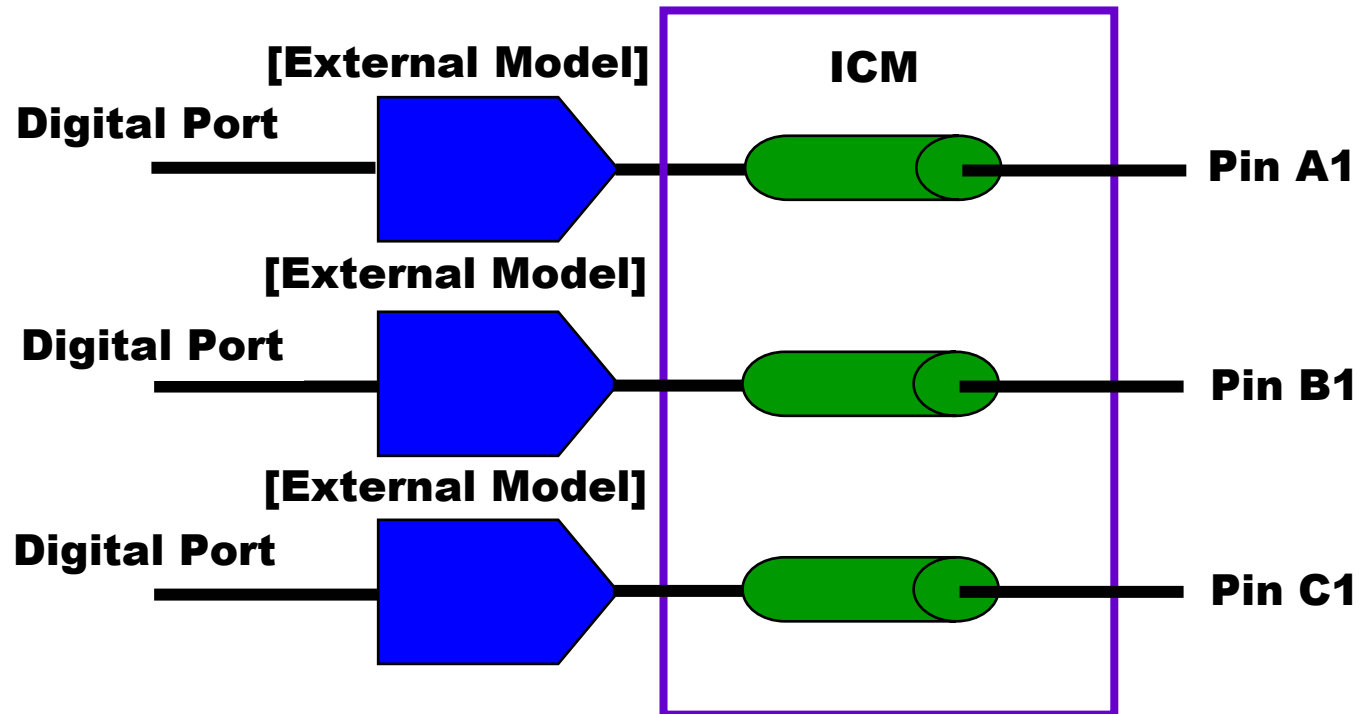


# **BACKUP**

# ICM & IBIS

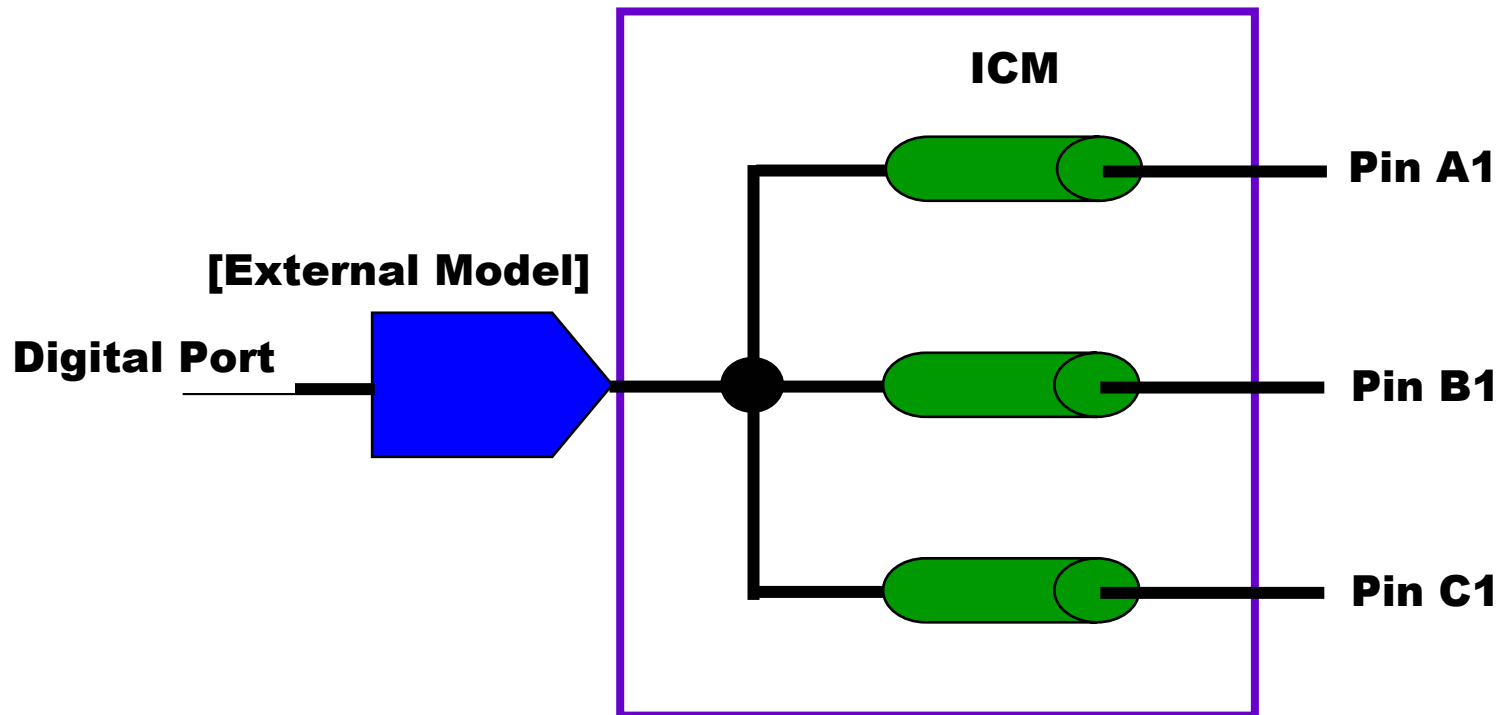


- ★ We must handle these four cases
- ★ Case 1 – Coupling



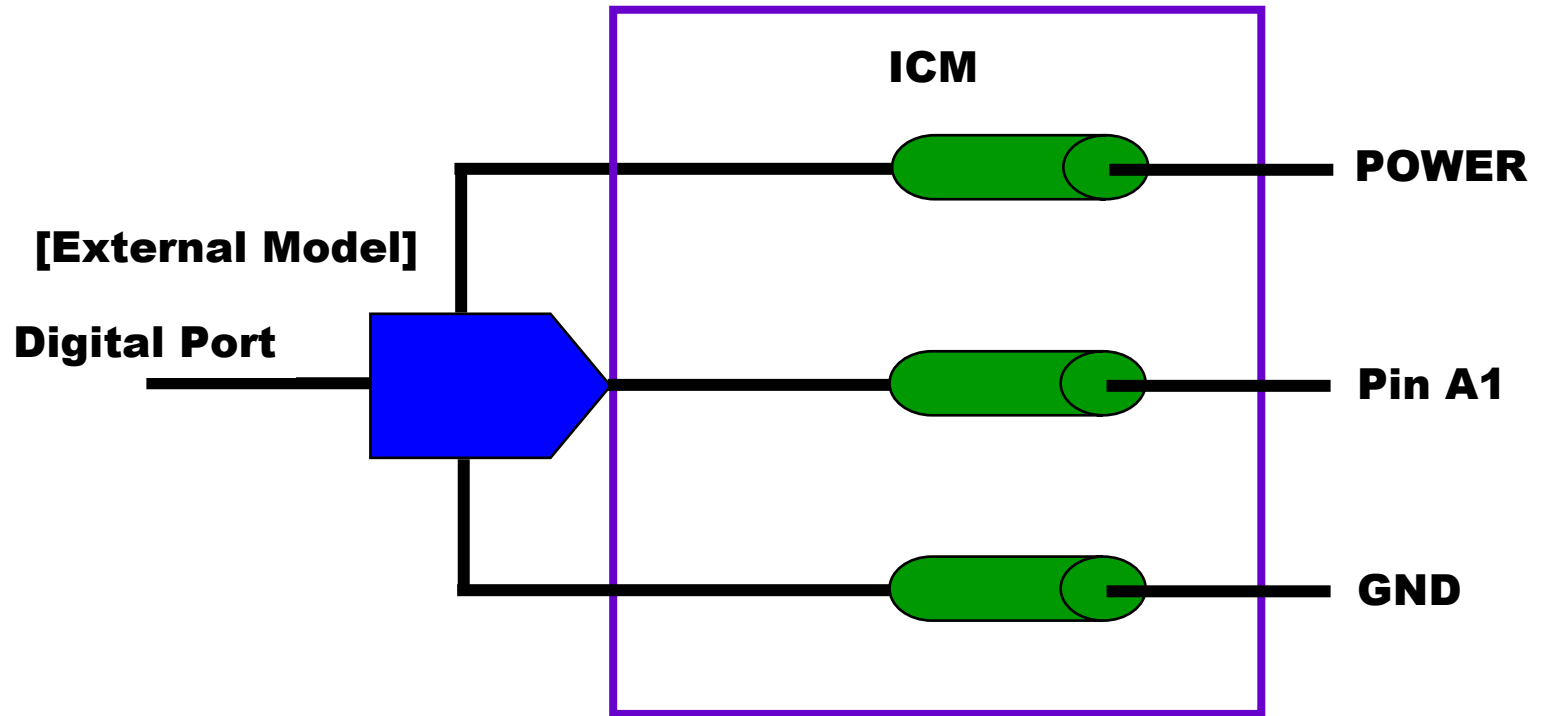
# Four Cases

- ★ Case 2 – Wired-or or “mux”
  - Multiple pins, single [Model]



# Four Cases

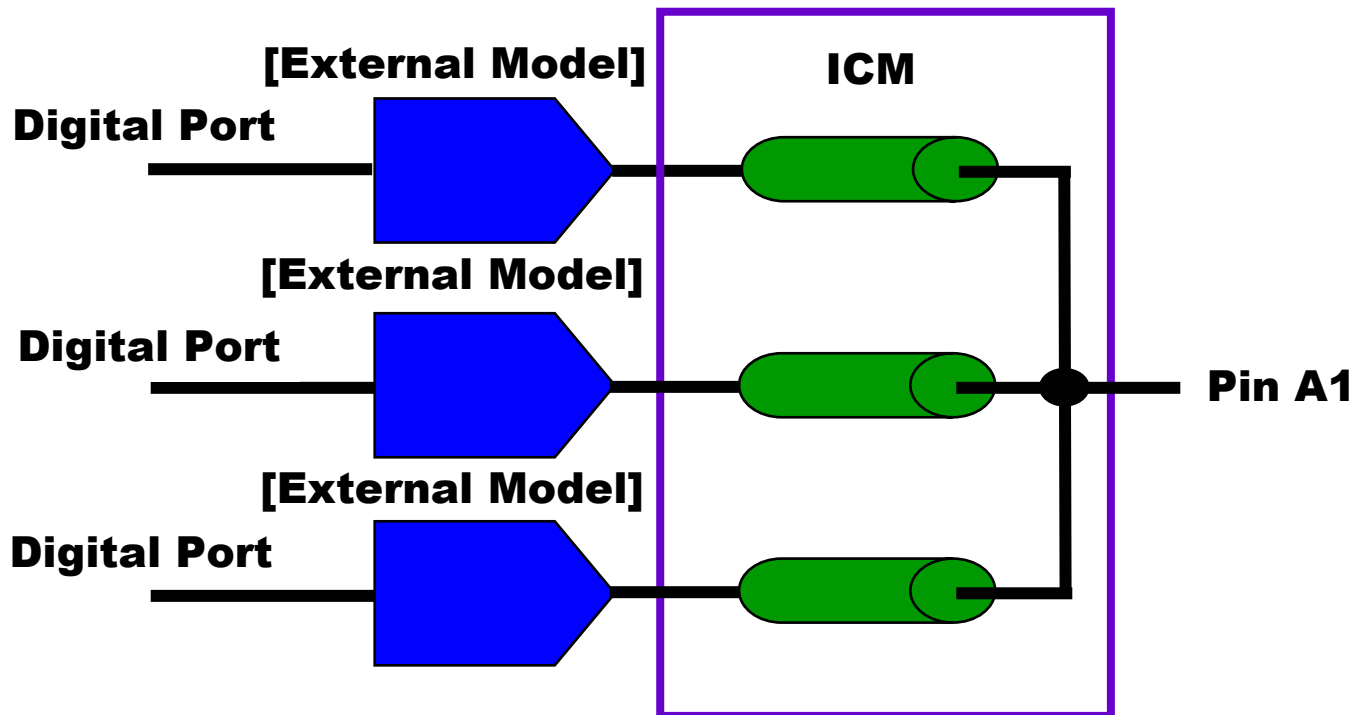
- ★ Case 3 – Power distribution
  - Single model, single signal pin





# Four Cases

- ★ Case 4 – Wired-or or “mux”
  - Single pin, multiple [Model]s

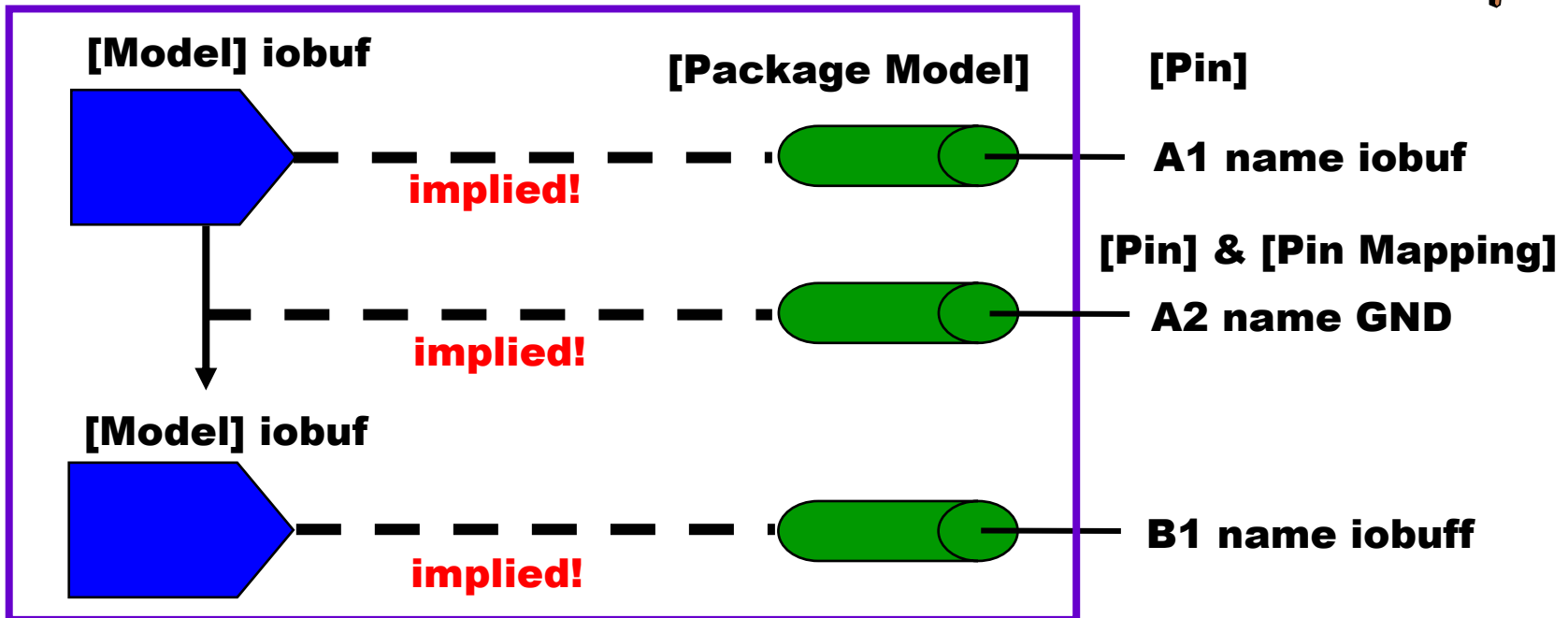


# Packages Today

## ★ IBIS 3.2 & 4.0 Approach



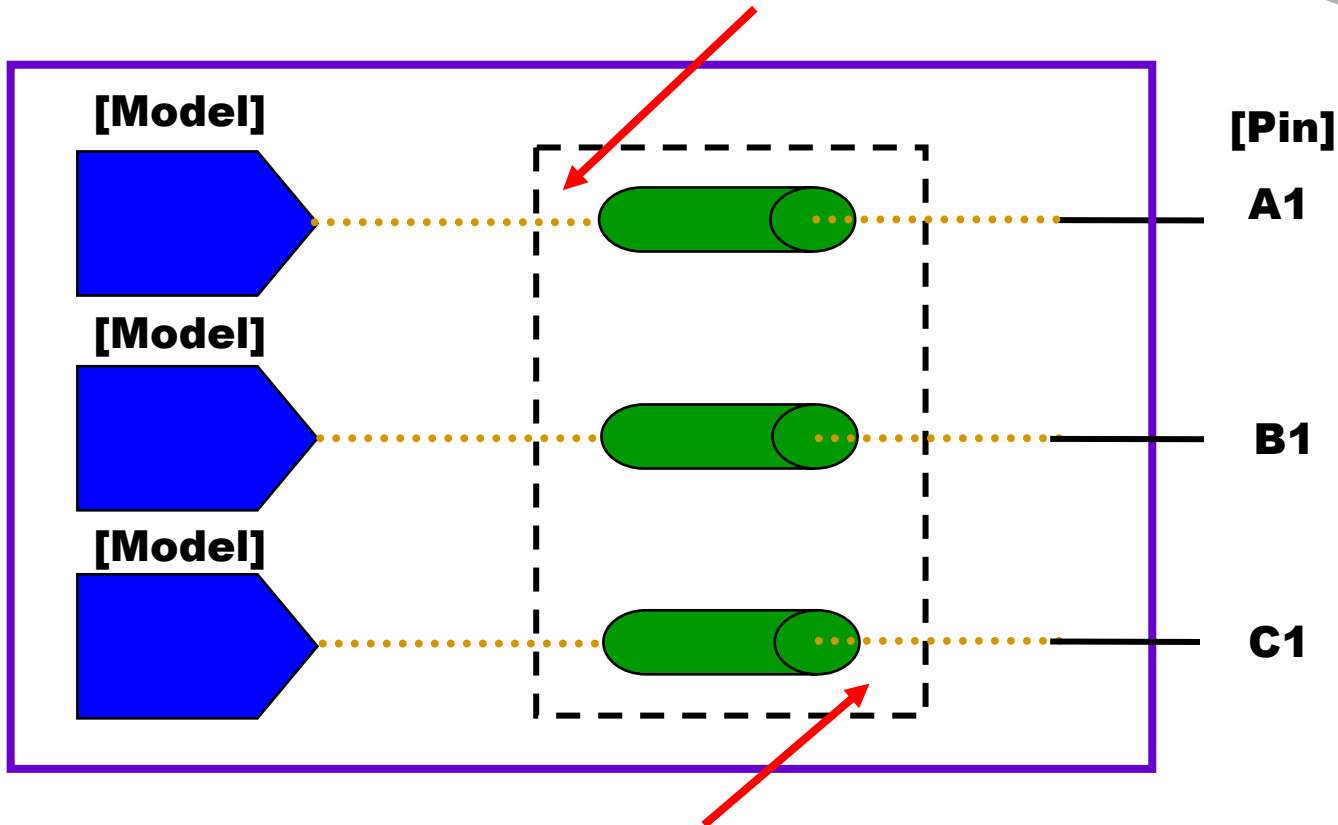
[Pin Numbers]



# What do we need?

## ★ The General Case...

**Need explicit link to [Model] instance**



**Need explicit link to [Pin] instance**

