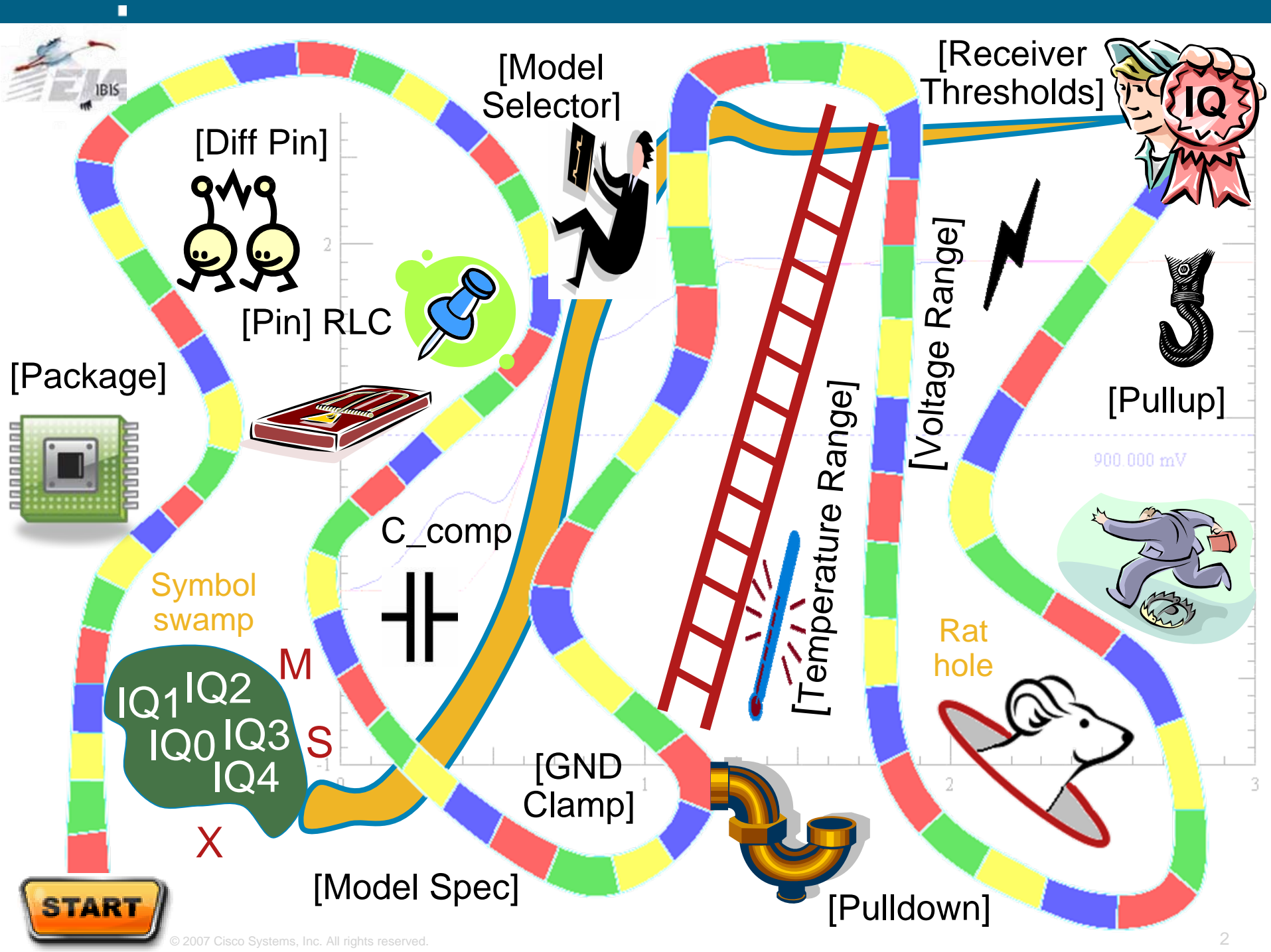




IBIS Quality Report



A progress report of the IBIS Quality Task Group
Mike LaBonte, Cisco Systems
IBIS Summit Meeting, 5 June 2007



Regular IQ Meeting Participants

- David Banas, Xilinx
- Moshiul Haque, Micron Technology
- Kim Helliwell, LSI Logic
- Mike LaBonte, Cisco Systems, chair
- Eckhard Lenski, Siemens
- Roy Leventhal, Leventhal Design & Communications
- Bob Ross, Teraspeed Consulting Group

Brief History

- Barry Katz started IBIS-Quality in March 2002
- Review of 1.0 IQ specification completed October 2004
- IQ checklist released October 2004
- Parser bug 90 submitted and approved August 2005
- Parser bug 94 submitted and approved March 2006
- Book “IBIS Model Creation & Validation” discusses IQ
- Version 1.1 IQ specification initiated August 2006

Specification Version 1.1

- IBIS Quality Levels

 - IQ0 – Not Checked

 - IQ1 – Passes IBISCHK

 - IQ2 – Suitable for Waveform Simulation

 - IQ3 – Suitable for Timing Analysis

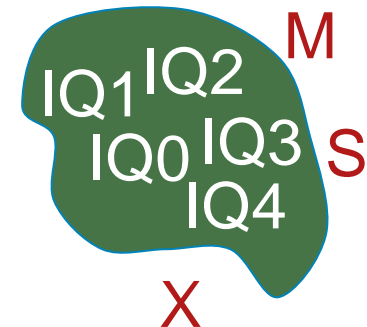
 - IQ4 – Suitable for Power Analysis

- Special Designators

 - S – Simulation correlated

 - M – Measurement correlated

 - X - Exceptions



IQ Check Example

3.2.5 {LEVEL 3} [Pin] RLC parasitics are present and reasonable

For a LEVEL 2 model, pin parasitics are optional, but they are mandatory for a LEVEL 3 model (that is, a model suitable for timing). To pass this check the RLC values must be present for all signal pins in the [Pin] section, or [Package Model] must be present. Pin parasitics should either be measured or extracted using a 2D or 3D solver. Reasonable signal pin parasitics will result in impedance and delay characteristics that fall in the ranges:

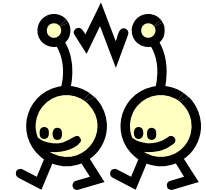
$$TD = \text{SQRT}(LC) < 300\text{ps}$$

$$Z0 = \text{SQRT}(L/C) < 100\text{ohm}$$

Note that IQ check 3.1.2. also requires that each [Pin] RLC value falls within the min/max range as given by the [Package] keyword. The [Package] keyword can be adjusted to accommodate.

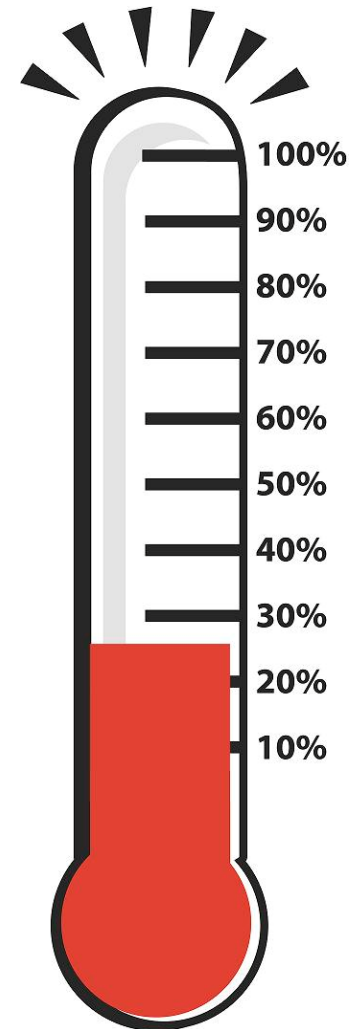
Current Activities

- Working on feature-selective validation for correlation
- Reviewing IQ checks
 - Updating to new level numbering system
 - Rationale documented to avoid future confusion
 - Last reviewed check 3.3.4, end of [Diff Pin] section
 - Jumped ahead to discussion of [Receiver Thresholds]



Summary of 1.1 Review Progress

- 2.0 General Header Section
8 of 8 checks reviewed
- 3.0 Component Section
17 of 19 checks reviewed
- 4.0 Model Section
0 of 68 checks reviewed
- 5.0 Possible Errors
Needs rework, maybe a name change
- 6.0 Correlation
David and Roy working on this
- 7.0 Model Limitations and Model Maker Notes
???



IBIS Quality Task Group

- **Web:**

http://www.vhdl.org/pub/ibis/quality_wip

- **Email list:**

<http://www.freelists.org/list/ibis-quality>

–Or send email

To: **ibis-quality-request@freelists.org**

Subject: **subscribe**

- **Meetings:**

–Tuesdays from 11:00am to 12:00pm Eastern Time

- **Questions? Mike LaBonte milabont@cisco.com**