



# IBIS Activities and Future Projects

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# New IBIS Officers 2009 - 2010

- Chair: **Bob Ross**, Teraspeed Consulting Group, (past Chair 1996-2001)
  - Vice-Chair: **Lance Wang**, IO Methodology
  - Secretary: **Randy Wolff**, Micron Technology
  - Webmaster: **Syed Huq**, Cisco Systems
  - Postmaster: **Mike LaBonte**, Cisco Systems
  - Librarian: **Anders Ekholm**, Ericsson
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- Thank you **Michael Mirmak**, Intel Corporation for 6 successful years as Chair



# IBIS Active Since 1993 (Recent Activities)

- Regular IBIS meetings
  - Teleconference/Web meetings every 3 weeks
  - Standards and documents and parsers
- IBIS Summits (about 5 per year)
  - China, Japan, Europe, and USA (2)
- New logo .....
- Active task groups
  - **IBIS Model Review** – Free review service
  - **Quality** - IBIS Quality Specification
  - **Interconnect** (ad hoc) - Touchstone Spec., ICM
  - **Advanced Technology Modeling** - AMI work



# Task Group Projects

- **IBIS Model Review** – Lynne Green
  - Free review of IBIS models for semiconductor suppliers
- **IBIS Quality** – Mike LaBonte
  - IBIS Quality Specification Version 2.0 (2009)
  - IBIS checklist
  - IBIS correlation project
    - IBIS Quality Handbook material
    - Different metrics
    - Board measurements

# IBIS Task Groups

- **Interconnect Modeling** – Michael Mirmak
  - Touchstone 2.0 (2009), Touchstone 2.1
  - Touchstone advances (Sparse Matrix Mapping)
  - Binary format pending proposal
  - Model Connection Protocol (MCP) pending proposal
- **Advanced Technology Modeling** – Arpad Muranyi
  - Algorithmic Modeling Interface (AMI) – Updated proposal
  - IBIS Interconnect Spice Subcircuit (IBIS-ISS) Specification proposal

# “ibischk5” Parser (2009)

- Ibischk5, Version 5.0.1
  - Free executables: <http://www.eda.org/pub/ibis/ibischk5/>
  - Supports IBIS Version 5.0 (ratified 2008)
    - Algorithmic model interface for Serdes analysis
    - Power delivery system SSO and gate modulation
    - EMI parameters
    - Other – (area based thresholds)
- Checks all [IBIS Ver]s of IBIS files
- Over \$100,000 of contracted work since 1993
- Supports .ibs, .pkg, .ebd, and .ami formats directly or through linkages

# New Flags in ibischk5

```
Usage: ibischk5      <IBS filename>
      : ibischk5 -ebd <EBD filename>
      : ibischk5 -pkg <PKG filename>
      : ibischk5 -ami <AMI filename>
Usage: ibischk5 -caution -numbered <IBS filename>
      : ibischk5 -caution -numbered -ebd <EBD filename>
      : ibischk5 -caution -numbered -pkg <PKG filename>
      : ibischk5 -caution -numbered -ami <AMI filename>
```

The flags prior to the file name can be in any order,  
and the -caution and/or -numbered flags are optional.

- **-ami** for <file\_name>.ami (algorithmic model interface control file)
- **-numbered** for numbered **E**rror, **W**arning, **N**otes and **C**autions messages

# ibischk5 {-numbered} -ami file4.ami

Checking file4.ami for IBIS 5.0 Compatibility...

ERROR - Illegal Usage value A specified for Param1  
ERROR - Illegal Type value B specified for Param1  
ERROR - Illegal Format value C specified for Param1  
ERROR - No Reserved\_Parameters found

Errors : 4

File Failed

Checking file4.ami for IBIS 5.0 Compatibility...

E4627 - Illegal Usage value A specified for Param1  
E4627 - Illegal Type value B specified for Param1  
E4627 - Illegal Format value C specified for Param1  
E4622 - No Reserved\_Parameters found

Errors : 4

File Failed



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# “tschk2” Parser (2009)

- Checks Touchstone Version 1.0 (TS1) and Version 2.0 (TS2)
  - Error and Warning numbers
  - Free executables: <http://www.eda.org/pub/ibis/tschk2/>
- Converts TS1 to TS2, TS2 to TS1 where practical with **-canonical\*** flags
- Provides comment headers and real, imaginary format (RI) with **-describe** flag
- Source code package includes 440+ test cases
- C++, well documented
- Thanks to contractor Agilent Technologies



# tschk2 {-canonical\*} FILE

- **{-canonical | -canonical-v2}**
  - **TS1, TS2 → TS2**
  - Provides number of ports, frequencies and other information
  - Un-normalizes TS1 Y-, Z-, G- and H-parameters and effective noise resistance
- **{-canonical-v1}**
  - **TS1, TS2 → TS1** where practical
  - Applies column formatting rules and 2-port 2I\_I2 ordering
  - Normalizes TS2 Y-, Z-, G- and H-parameters and effective noise resistance
  - No mixed mode or selectable reference resistance processing

# tschk2 {-describe} FILE (header comments, RI format)

[Network Data]

|        |       |       |       |       |       |       |       |       |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|
| ! freq | S11re | S11im | S12re | S12im | S13re | S13im | S14re | S14im |
|        | S15re | S15im | S16re | S16im |       |       |       |       |
| !      | S21re | S21im | S22re | S22im | S23re | S23im | S24re | S24im |
|        | S25re | S25im | S26re | S26im |       |       |       |       |
| !      | S31re | S31im | S32re | S32im | S33re | S33im | S34re | S34im |
|        | S35re | S35im | S36re | S36im |       |       |       |       |
| !      | S41re | S41im | S42re | S42im | S43re | S43im | S44re | S44im |
|        | S45re | S45im | S46re | S46im |       |       |       |       |
| !      | S51re | S51im | S52re | S52im | S53re | S53im | S54re | S54im |
|        | S55re | S55im | S56re | S56im |       |       |       |       |
| !      | S61re | S61im | S62re | S62im | S63re | S63im | S64re | S64im |
|        | S65re | S65im | S66re | S66im |       |       |       |       |

10000 -0.665574600466 -0.0006609751214130001 0.333068101839  
0.000663504688568 0.333100908672 -0.0006633295929  
Etc.



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# Future Projects

- IBIS Version 5.1 – improved AMI
  - ibischk5, Version 5.0.X – bug fixes
- IBIS Interconnect Subcircuit Spice (IBIS-ISS)
- Touchstone 2.1 – with Sparse Matrix Mapping
  - tschk2, Version 2.1.0
- Model Connection Protocol (MCP)
- Others (binary format)
- Later discussion on other ideas
  - Other features and needs
  - Cookbooks, Handbooks?