IBIS Summary and Evolution

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IBIS Summit Meeting
Design Automation Conference 2006
San Francisco, California
July 25, 2006

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Expanded Tree (from Specification) (ross_4_2_tree.txt)

- .ibs, .pkg, .ebd files

- Keyword hierarchy, grouping, scoping, and subparameters

- Repeated keywords and subparameters

- Plus major version history for IBIS additions

- Plus predefined selections

- Provides a partial syntactical summary

- Reduced version in IBIS Version 4.2 specificaton

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IBIS Evolution
(ross_4_2_evol.pdf)

- Overlaps, reformats tree

- "Layering" columns of IBIS from Version 1.1 through 4.2 shows functional evolution

- Top-level groupings for keywords

- Highlights significant [* Spec] subparameters and *_type selections – a key aspect of IBIS

- Evolution of all other subparameters

- Most predefined selections in tree not shown

- Other notable changes given

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IBIS Organization and Consistencies

- Same header for .ibs, .pkg, .ebd
- Groupings
  - Information and Specification (header and throughout)
  - Pinout (under Component)
  - Package (under Component and Package)
  - Model (and submodel)
  - Electrical Board Description
- Local section or grouping consistencies and rules for functionality groupings (e.g., multi-lingual section, series elements, test loads)
- Functionality sometimes touches several areas

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Name, Functional Consistencies

- Pin keywords (with [* Pin *] – lower case subparameters as (sometimes optional) column headings (except R_pin, L_pin, C_pin), and usually list pin numbers

- Package keywords [* Package *] or under R_pin, L_pin, C_pin columns

- All other subparameter names start with upper-case (except dV/dt_r and dV/dt_f)

- R*, L*, C* for passive elements, usually V* for voltage

- Common names or strings re-used (e.g., POWER, GND, Pullup, Pulldown, ext_ref, ref, etc.)

- But always a few exceptions

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Many Consistencies Not Shown

- Typ-min-max rules (by magnitude or P/V/T)
- Several keyword and subparameter formats
- Subparameters positioned before scoped keywords or tables
- Very few keyword ordering rules at top-level or within keyword scoping
- Single numerical subparameter "=" rule, otherwise white space
- Number system, base units, multipliers
- Typ always required
- Many more consistencies and also specific exceptions

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Expansion Syntax Options

- Remain consistent (at least locally)
  - Keyword or Subparameter choice?
  - Format style?
  - Name options?
- Consistency simplifies rules and understanding and promotes adoption

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Closing

- Documents summarize IBIS and its evolution leading to 150 pages

- Shows name and structural consistency and interactions

- (ICM separate document – syntax departures block IBIS merger)

- Version 5.x (column) layer and tree expansion
  - Link IBIS and ICM, EMC rules, power delivery, more multi-lingual refinements, more specs., etc.
  - More layering and blending

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