IBIS Summary and Evolution

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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 specification
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
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
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
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
Expansion Syntax Options

• Remain consistent (at least locally)
  – Keyword or Subparameter choice?
  – Format style?
  – Name options?

• Consistency simplifies rules and understanding and promotes adoption
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