IBIS Summary Documents

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November 19, 2013
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(originally presented November 15, 2013)
(presented by Anders Ekholm, Ericsson)
Document Samples

- Keyword Hierarchy tree in IBIS Version 6.0, Section 3.1
- Expanded Keyword Hierarchy tree
- Evolution document
- IBIS-AMI parameter tables in IBIS Version 6.0, Section 10.7
- These documents summarize the IBIS elements
Official Keyword Hierarchy (Section 3.1) from Specification

Keywords

3.1 KEYWORD HIERARCHY

Subparameters

- Model
  - Model Spec
  - [Model Spec]
    - [Model Spec]
      - Model
        - Model
          - [Model]
            - [Model]
              - [Model Spec]
                - [Model Spec]
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                                                - [Model Spec]
                                                  - [Model Spec]
                                                    - [Model Spec]
Unofficial Keyword Hierarchy
Updated from September, 2007

• Keyword Hierarchy tree
  – 165 distinct keyword usages
  – Some keywords are re-used in different contexts (e.g., [IBIS Ver], [End], [Rising Waveform], etc. and in .ibs, .pkg and .ebd files)

• Hierarchy documents updated with Version 5.1 and Version 6.0 information
Unofficial Keyword Hierarchy Tree with Extra Information

(ml): multiple locations for [Comment Char]

(m): multiple times

(x.y): when added at major version [1.1 (blank), 2.1, 3.2, 4.2, 5.1, 6.0]

(*): choices or selections given at end
For example, IBIS-ISS added as a Language choice in Version 6.0

polarity added to D_to_A with Non_Inverting and Inverting selections in Version 6.0
Unofficial Evolution Document

• Evolution document features:
  – Updated columns show major version evolution
  – Rules and changes evolution
  – Significant subparameter selections such as the * _type subparameter choices

• Hierarchy and Evolution documents contain overlapping information, but expanded Hierarchy document has more detail

• Sample page shown next
## Evolution Document (*_type, EMI Information and Repeater Pin)

**Test_data_type and Test_load_type SELECTIONS**

<table>
<thead>
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- Single ended
- Differential

**Begin EMI Component** KEYWORDS

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</tbody>
</table>

- [Pin EMI]  
- [Pin Domain EMI]

**Model_emi_type SELECTIONS**

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</tbody>
</table>

- Ferrite
- Not_a_Ferrite

**(SUBPARAMETERS) FOR OTHER KEYWORDS**

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</tbody>
</table>

- [Component]
  - (Si_location, Timing_location)

- [Begin EMI Component]
  - (Domain, Gpd, C_Heatsink_end, C_Heatsink_float)

- [Repeater Pin]
  - (tx_non_inv_pin)

- [Pin EMI]
  - (domain_name, clock_div)

- [Pin Domain EMI]
  - (percentage)

- [Package]
  - (R_pkg, L_pkg, C_pkg)

- [Pin]
  - (signal_name, model_name, R_pin)
(\texttt{parameter\_name})

(Usage \texttt{<usage>}) \quad | \quad \text{required}

(Type \texttt{<data\_type>}) \quad | \quad \text{required}

({\texttt{Format}} \texttt{<data\_format> <data>}) \quad | \quad \text{required} \ast

(List\_Tip) \quad | \quad \text{optional with} \quad ({\texttt{Format}} \texttt{List})

(Default \texttt{<value>}) \quad | \quad \text{optional or illegal} \ast

(Description \texttt{<string>}) \quad | \quad \text{optional}

\)

\ast \quad \text{Value or Default}, \text{ but not both, and other rules}
New - Four Summary Tables in Section 10.7 of the Specification

- **Usages for Reserved Parameters**
- **Types for Reserved Parameters**
- **Formats for Reserved Parameters**
- **Types for Format values**
- **28 Reserved Parameters, 18 new since Version 5.1**
- Part of one table shown next
### Table 31 – Allowable Data Types for Reserved Parameters

<table>
<thead>
<tr>
<th>Reserved Parameter</th>
<th>Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Float</td>
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<tr>
<td>AMI_Version(^1)</td>
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</tr>
<tr>
<td>DLL_ID(^3)</td>
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<tr>
<td>DLL_Path(^3)</td>
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<tr>
<td>GetWave_Exists</td>
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<tr>
<td>Ignore_Bits(^2)</td>
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</tr>
<tr>
<td>Init_Returns_Impulse</td>
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</tr>
<tr>
<td>Max_Init_Aggressors</td>
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</tr>
<tr>
<td>Repeater_Type(^3)</td>
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</tr>
<tr>
<td>Rx_Clock_PDF</td>
<td>X</td>
</tr>
<tr>
<td>Rx_Clock_Recovery_DCD(^3)</td>
<td>X</td>
</tr>
<tr>
<td>Rx_Clock_Recovery_Dj(^3)</td>
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</tr>
<tr>
<td>Rx_Clock_Recovery_Mean(^3)</td>
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</tr>
<tr>
<td>Rx_Clock_Recovery_Rj(^3)</td>
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<tr>
<td>Rx_Clock_Recovery_Sj(^3)</td>
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<tr>
<td>Rx_DCD(^3)</td>
<td>X</td>
</tr>
<tr>
<td>Rx_Dj(^3)</td>
<td>X</td>
</tr>
<tr>
<td>Rx_Noise(^3)</td>
<td></td>
</tr>
</tbody>
</table>
Conclusion

• Summary information provides quick references for IBIS and IBIS-AMI syntax

• Document references

  http://www.eda.org/ibis/ver6.0/
  ver6_0.docx, .pdf (official specification)
  tree_6_0.txt (unofficial)
  evol_6_0.docx, .pdf (unofficial)