New Needs for Measurements and Parameter Passing in IBIS

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Measurement Support in IBIS

- Historically IBIS has supported measurement by adding new keywords
  - E.g. Vinh, Vinh_ac, Vinh_dc
- We are all aware of the difficulties keeping IBIS up to date to meet new measurement requirements
- Alternatives to new measurement keywords include:
  - Creating or adopting an IBIS measurement language
  - Intelligent AMS* models that make their own measurements

*Analog VHDL, Analog Verilog, VHDL-AMS, Verilog AMS or possibly 'C' language models

New IBIS measurements and SI tools

- Historically SI tools have supported IBIS measurements through specialized code
  - Requires the SI tool to be enhanced before support for the new keyword becomes available
- The alternatives to adding new IBIS measurement keywords can be complemented by enhancing SI tools to dynamically add new measurements
- If each new measurement were accompanied by the following information it would allow the SI tools to deploy a user friendly interface:
  - For results: keyword, description, usage, data type and valid range
  - For AMS parameters: keyword, description, usage, data type and valid data entry range

Hypothetical Example of a Result

- **Monotonicity, specified by Vt integral**

  Keyword: “monotonic_vti”
  Description: “Maximum non-monotonicity”
  Usage: Constrained simulation result
  Data type: floating point number
  Valid Range: less than 0.021
  Value (from simulation): 0.17 - Violation!

Hypothetical Example of an AMS Parameter

- **Monotonicity, specified by Vt integral**

  Keyword: “monotonic_vti_max”
  Description: “Maximum non-monotonicity”
  Usage: Maximum value constraint
  Data type: floating point number
  Data Entry Valid Range: 0 to 2.0
  Default Value: 0.0
  Entered Value (from Constraint Spreadsheet): 0.021

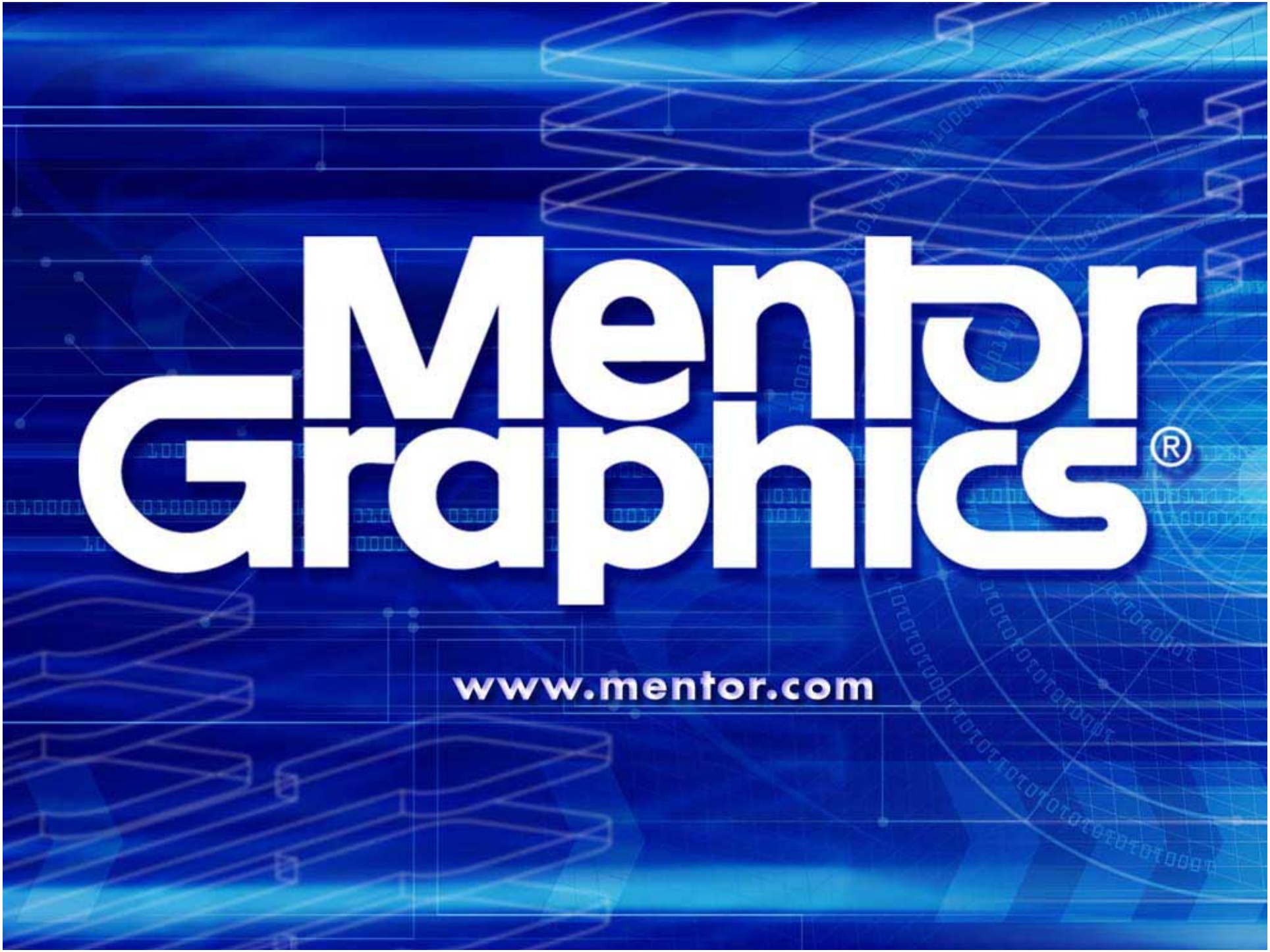
The Big Questions

- **Does the IBIS Open Forum wish to investigate alternatives to continuing to add measurement keywords?**
- **Does the IBIS Open Forum wish to add to the multi-lingual extensions to support better integration with SI tools?**

Backup Slides

IBIS Parameter Passing

- **Model Selector**
  - **Supports selection of one model from a list of available models**
  - **Popular for changing termination**
  - **Inefficient if there are lots of values as each alternative requires a full instantiation of a model**
- **VHDL-AMS and Verilog AMS Multi-lingual parameters**
  - **IBIS supplies parameter names**
  - **AMS source provides parameter name, data type and default value**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