SerDes Modeling: IBIS-AMI Evaluation Toolkit

(Originally presented at the Sept 11th Summit in Beijing)
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Challenges

• IBISCHK cannot check compiled models
  – Similar problem to AMS model calls

• Several possible sources of platform/model incompatibility
  – Incorrect EDA tool implementation
  – Incorrect model implementation
  – Incompatible run-time libraries

• A “reference standard” for IBIS-AMI is needed
  – Reference platform implementation
  – Reference model implementation
IBIS_AMI_Test

- Allows IBIS-AMI .dll models to be run as standalone “executables”
  - Facilitates model debug
  - Provides standard environment for testing model compliance
- Authored by SiSoft, source code to be turned over to IBIS Open Forum
  - Executable will be publicly available
IBIS_AMI_Tx Model

AMI File
- Reference IBIS & AMI files
- Reference Algorithmic model
  - Impulse response and waveform processing
  - 4 tap equalizer
    - Pre-cursor tap
    - Cursor tap
    - 2 post-cursor taps
  - Model normalizes tap sum
  - Scalable transmit swing
  - Executable and source code publicly available

Algorithmic Model Code

IBIS-AMI Evaluation Toolkit

- Goal: allow interested parties to evaluate & develop IBIS-AMI models
- Available on-line from IBIS-ATM task group website and from www.sisoft.com
- Contents
  - IBIS_AMI_Test utility
  - Sample TX model and source code
  - Sample input data, scripts, documentation
- Email discussion group established: ibis-ami-toolkit@freelists.org
Sample Results:
No TX EQ

Impulse Response

Eye Diagram

Signal @ Rx pad, Stimulus
Sample Results:
TX EQ: (-.15, .7, -.125, -.025) * 0.8

Impulse Response
Eye Diagram

Signal @ Rx pad, Stimulus
IBIS-AMI Toolkit

- Provides a “reference implementation” for testing EDA platforms and IBIS-AMI models
- Allows users to assess IBIS-AMI model functionality and performance
- Users can run analyses based on their own designs and channel impulse responses