Introducing IBIS 6.0

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http://www.eda.org/ibis/

Agenda

- IBIS 6.0 in Summary
  - Key Features
  - Changes from IBIS 5.1
- What problems does 6.0 address?
- Issues to Resolve
- What's Next?
- Questions

Key Features of IBIS 6.0

- IBIS 6.0 was approved September 20, 2013
  - http://www.eda.org/ibis/ver6.0/

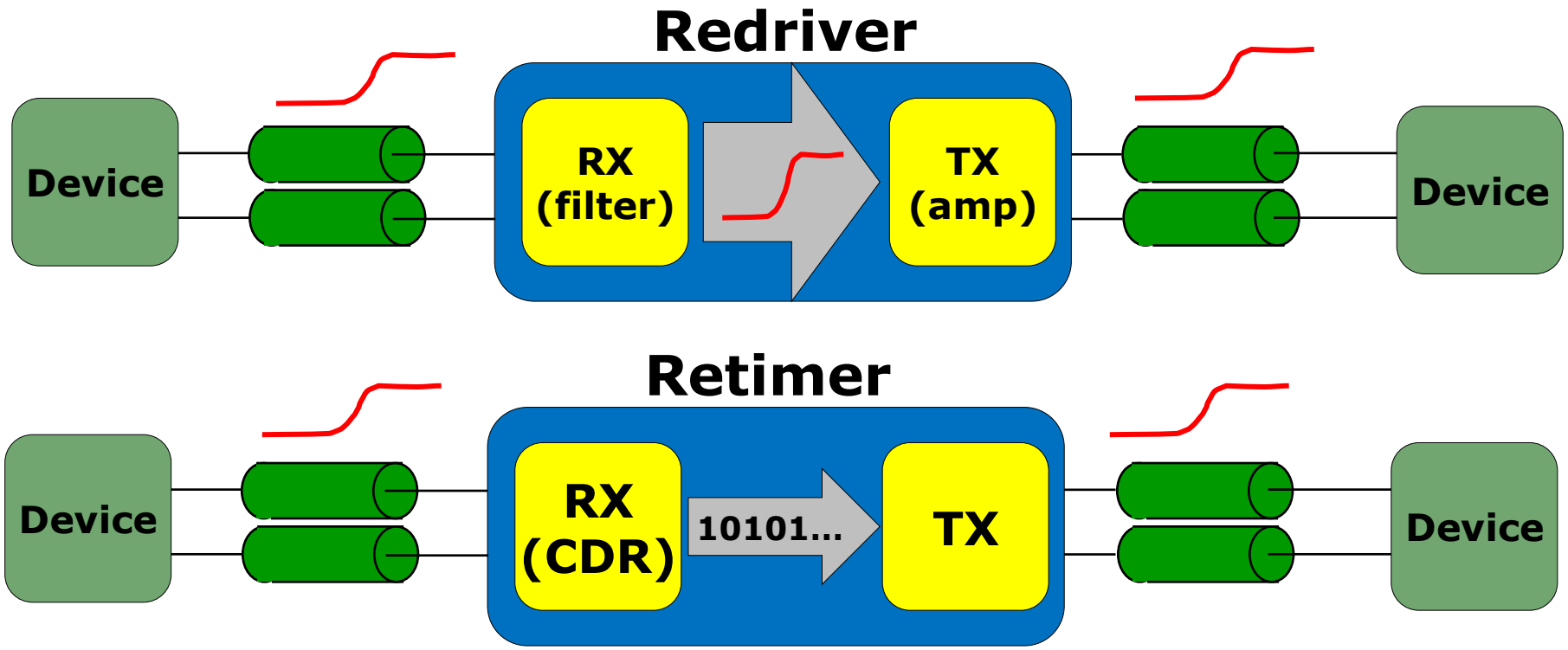
- Major additions focus on IBIS-AMI
  - Adds redriver and retimer support
  - Expands jitter/noise parameters
  - Clarifies analog buffer impedance descriptions
  - Supports IBIS-ISS (Interconnect SPICE Subcircuits) and Touchstone 1.x/2.0

Other Changes from IBIS 5.1

- Clarifications of A/D and D/A converters in [External Model] and [External Circuit]
  - Parameter passing now supported!
- Additional files supported for IBIS-AMI
  - Including explicit paths
  - Identifiers for individual IBIS-AMI model instances
- List Tips for IBIS-AMI Lists
  - Associates labels with parameter lists
- Improved organization of the document
  - Easier to read and use

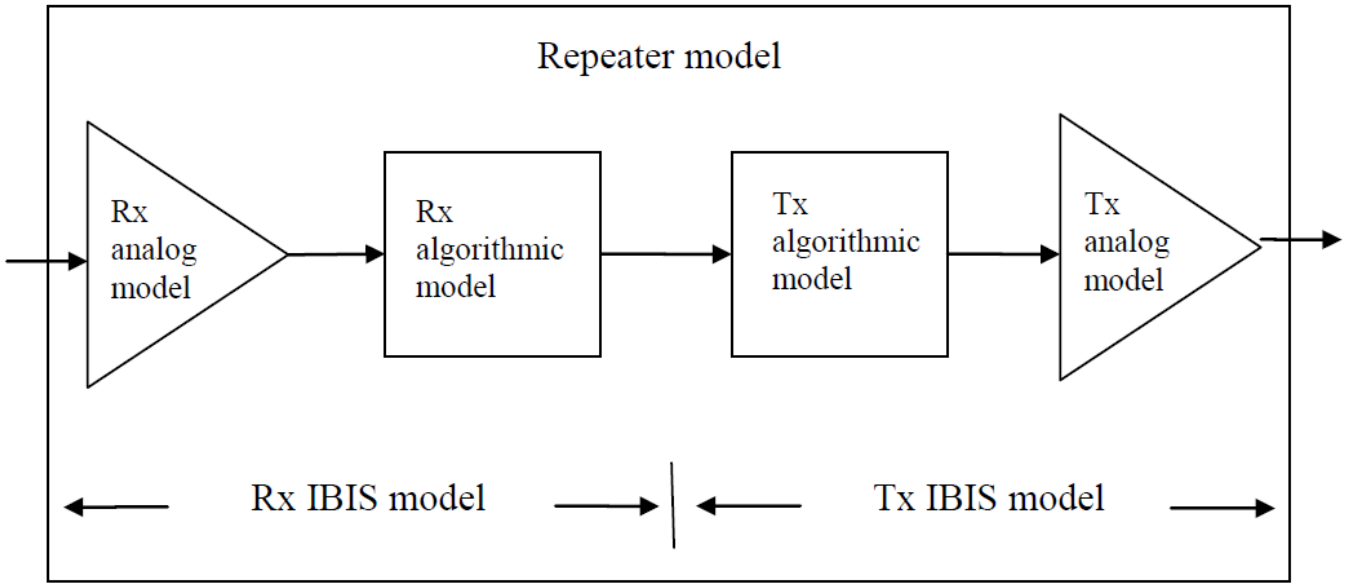
IBIS 6.0 Support Examples

- How do I model a mid-bus repeater?
  - Recall the repeater types: retimers and redrivers
  - Think of redriver as filtering and/or amplifying analog *signals*
  - Think of retimer as using clock-data recovery to re-transmit *data*



IBIS 6.0 Support Examples

- How do I model a mid-bus repeater?
  - Use [Repeater Pin] to identify RX and TX pins
  - Define “Redriver” or “Retimer” in the .ami parameters file under “Repeater_Type”
  - For Retimers, ensure AMI_GetWave is defined and included

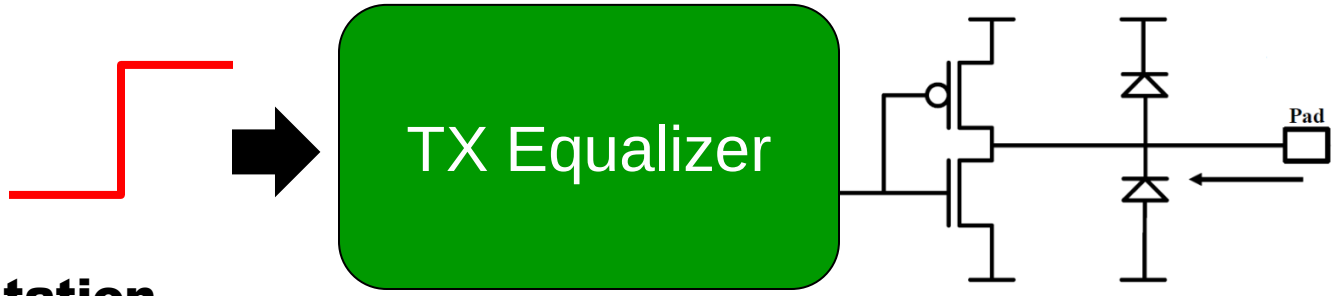


from the IBIS 6.0 specification

IBIS 6.0 Support Examples

- Where to “put” the analog impedance of the buffer?
- What if I can’t easily represent the analog behavior of my buffer using traditional IBIS?
  - In 6.0, use IBIS-ISS to represent complex analog buffer behavior
  - Traditional IBIS becomes ideal (TX or RX)

Concept

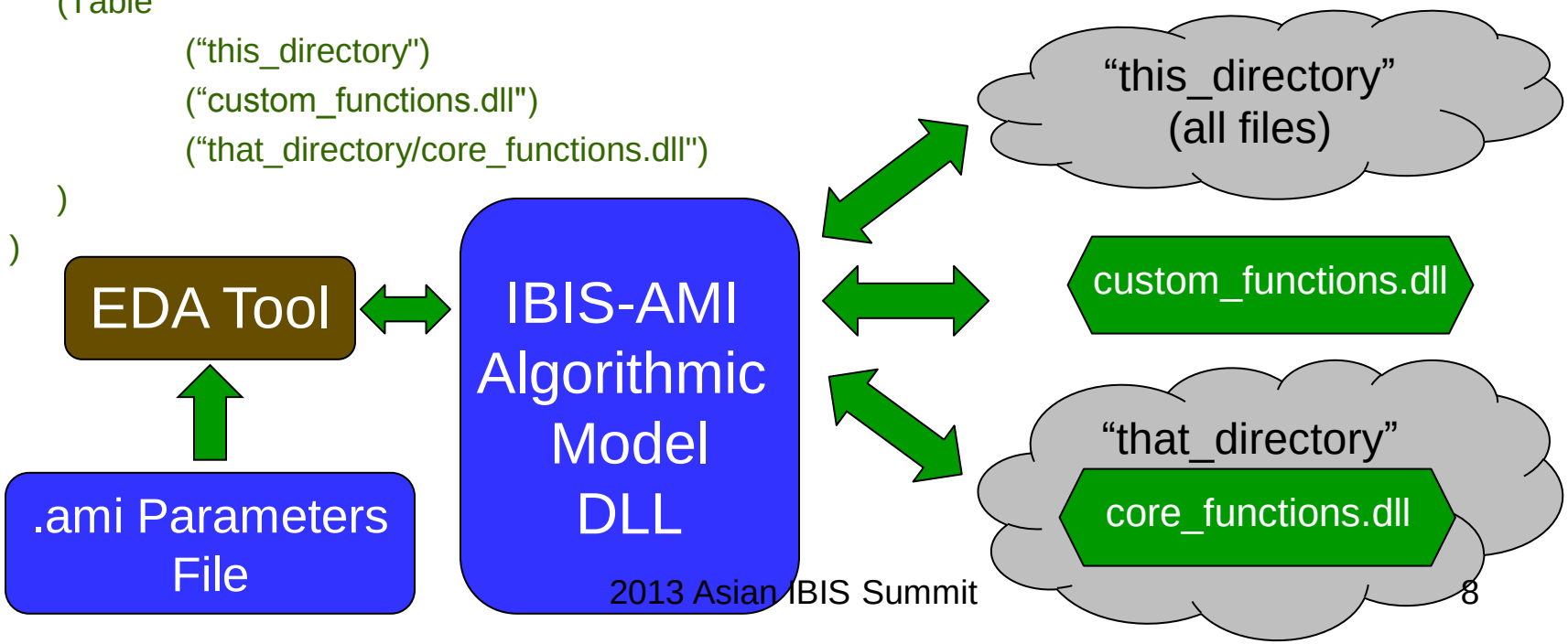


Implementation

IBIS 6.0 Support Examples

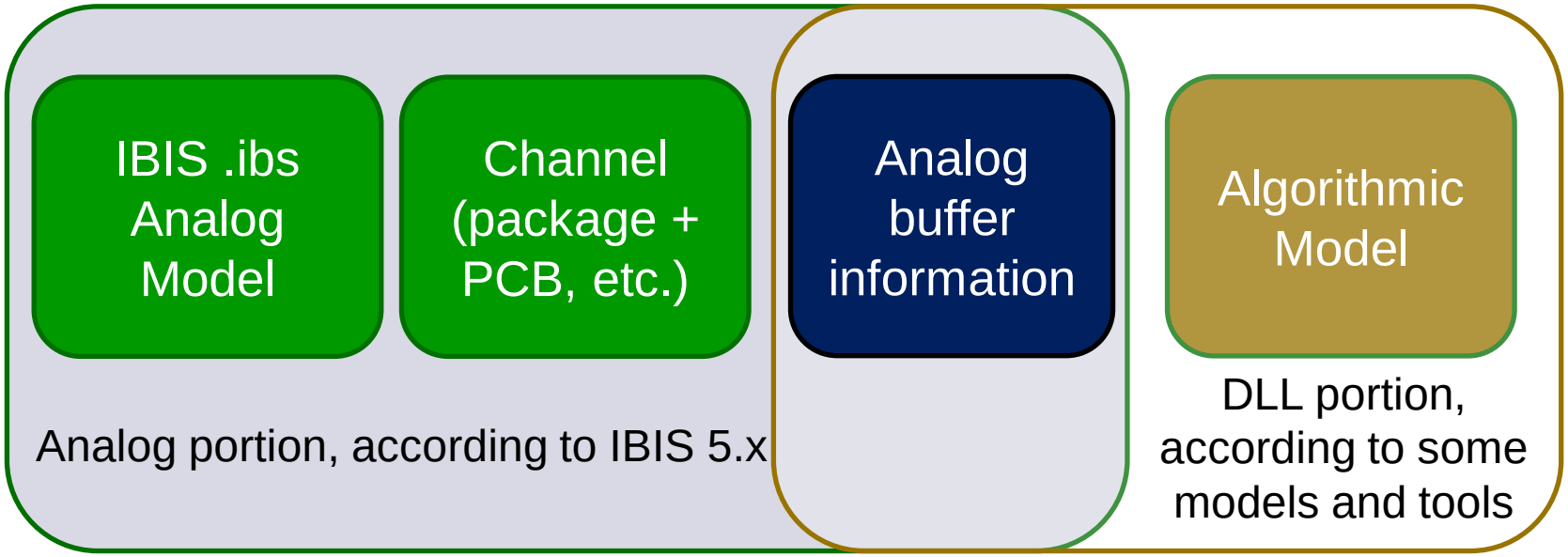
- What if your algorithmic model isn't a single file?
  - Multiple files, in different locations, now supported
  - From the .ami parameters file…

```
(Supporting_Files (Usage Info) (Type String)
    (Description "Additional files and directories required by this model")
    (Table
            ("this_directory")
            ("custom_functions.dll")
            ("that_directory/core_functions.dll")
    )
)
```



Issues to Resolve

- Ensuring true IBIS-AMI model compatibility
  - Some models under IBIS 5.x place buffer analog information in the executable (DLL or SO file)
  - This may be a problem for some tools
  - Use of IBIS 6.0 improved analog modeling can help ensure portability



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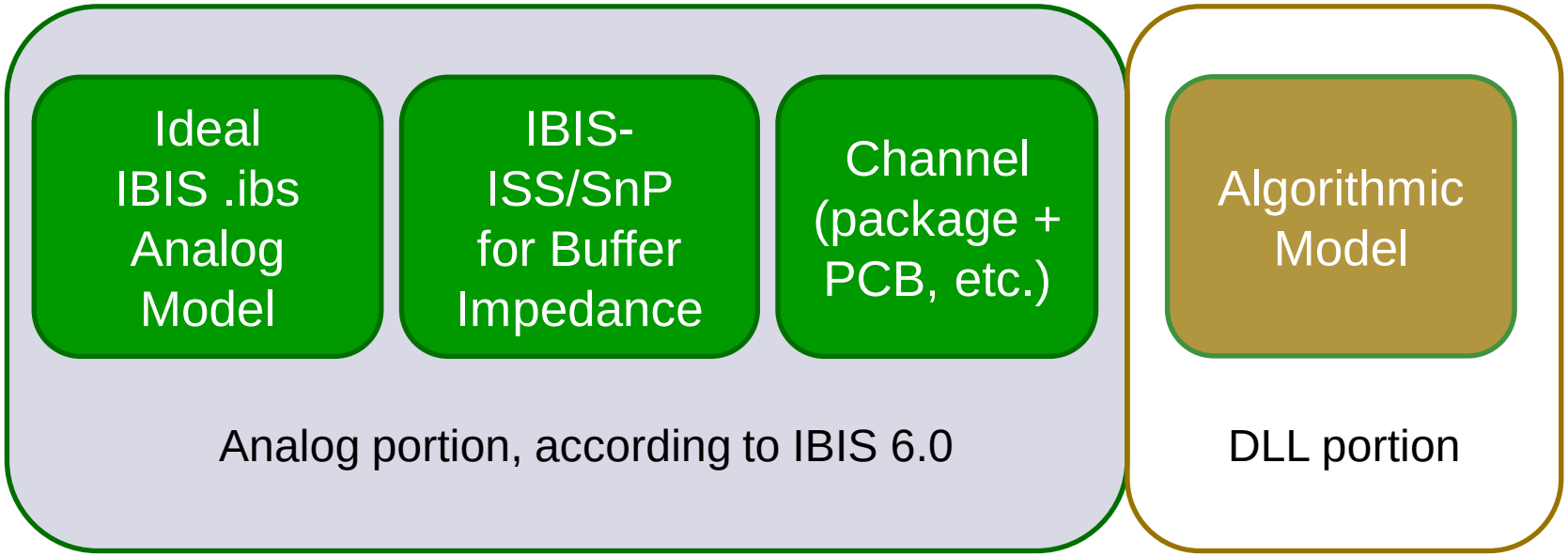

Issues to Resolve

- Improving IBIS packages
  - Two separate approaches being discussed
  - Objective is to finalize a package model format that…
    - *Can interact with IBIS and related files*
    - *Supports time- and frequency-domain modeling data in IBIS-ISS format*
    - *Supports arbitrary numbers of crosstalking signal lines in individual segments*
  - Target is to include this in the next major IBIS release

What's Next?

- A parser: IBISCHK6
  - Check new keyword syntax
  - Check new IBIS-AMI parameter syntax
  - Simple checks for IBIS-AMI DLL/SO executables?
    - *Are the required IBIS-AMI functions present?*
    - *Do the functions execute (instead of crashing)?*
- Is a parser for IBIS-ISS required?
  - SPICE features used in IBIS-ISS are very common across EDA tools
- IBIS version updates
  - IBIS continues to target updates twice per year

Questions?