

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

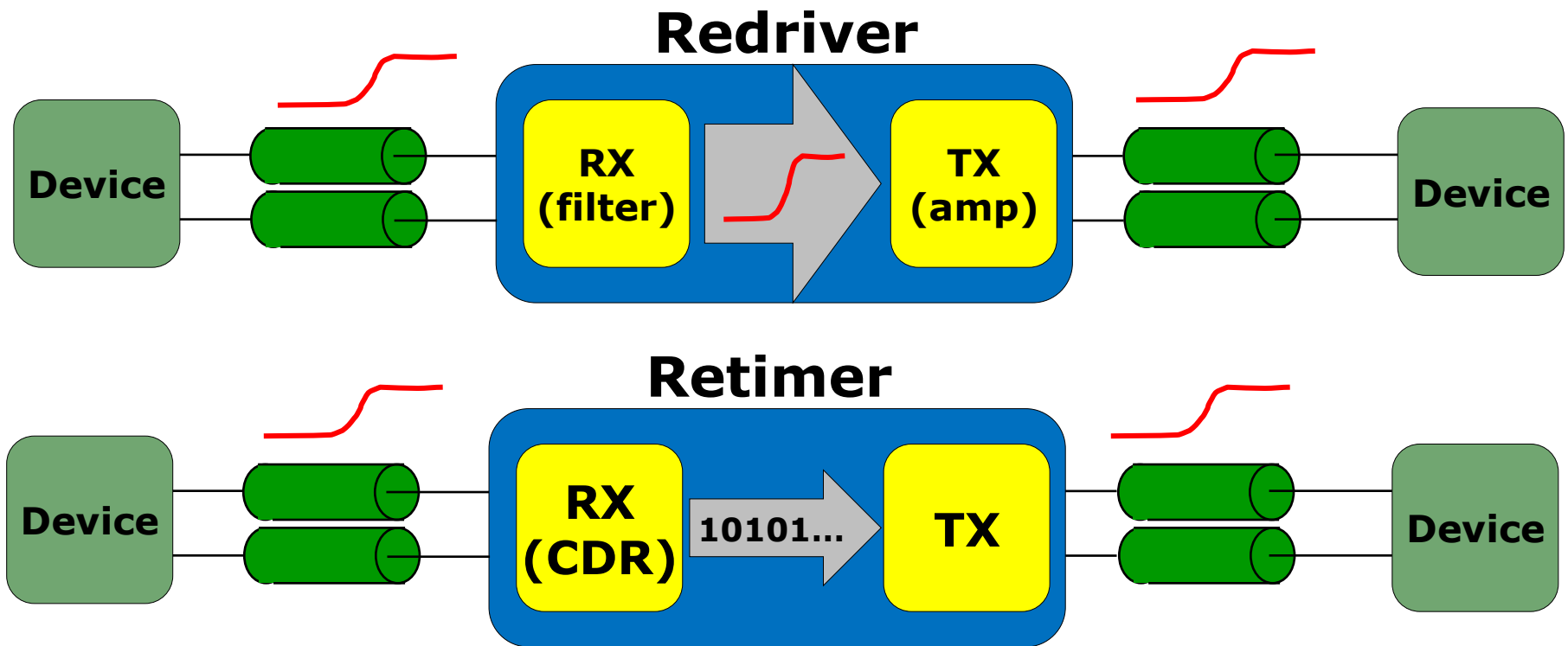
- IBIS 6.0 was approved September 20, 2013
 - <http://www.eda.org/ibis/ver6.0/>
- Major additions focus on IBIS-AMI
 - Adds redriver and retimer support
 - Expands jitter/noise parameters
 - Clarifies analog buffer impedance descriptions
 - Supports IBIS-ISS (Interconnect SPICE Subcircuits) and Touchstone 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

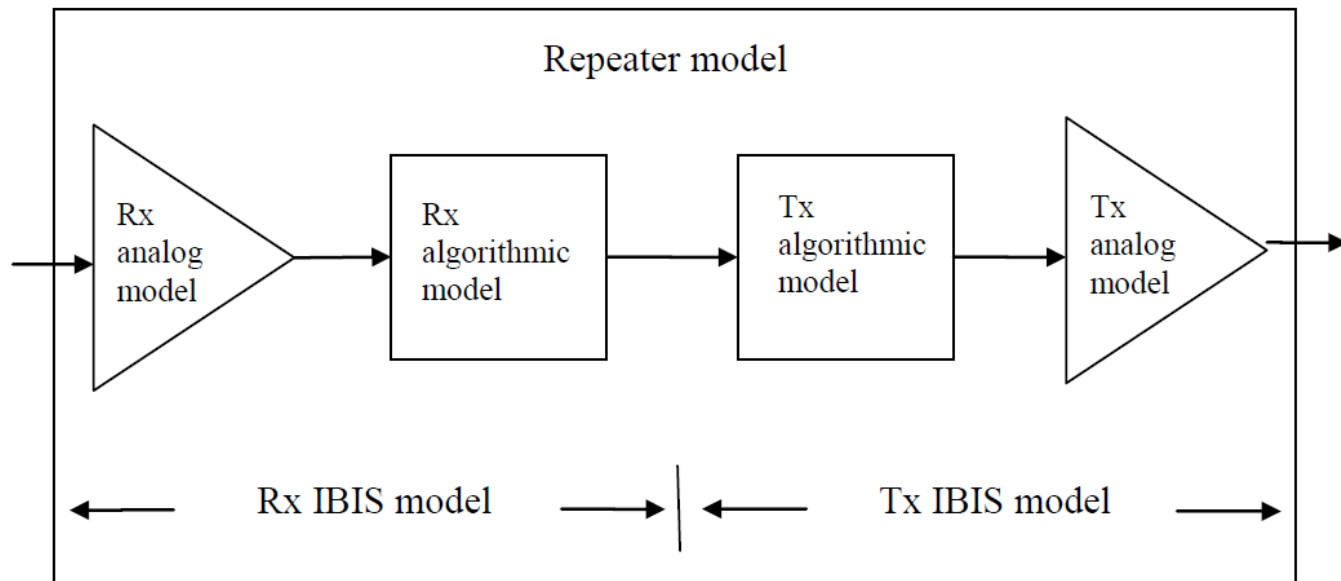
IBIS 6.0 Support Examples

- 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

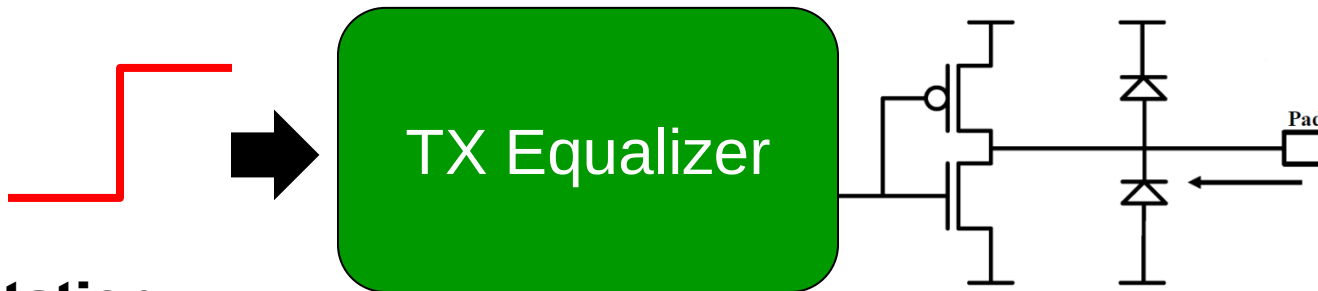


from the IBIS 6.0 specification

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

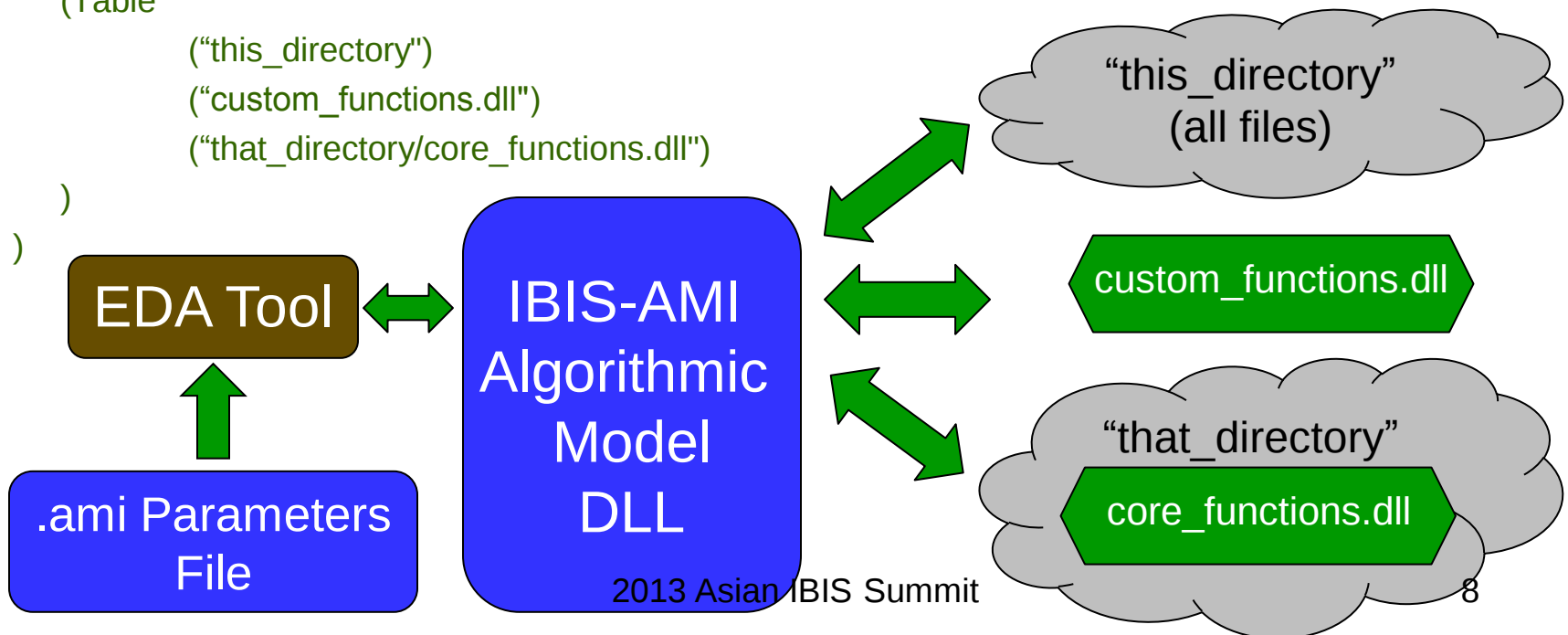
("this_directory")

("custom_functions.dll")

("that_directory/core_functions.dll")

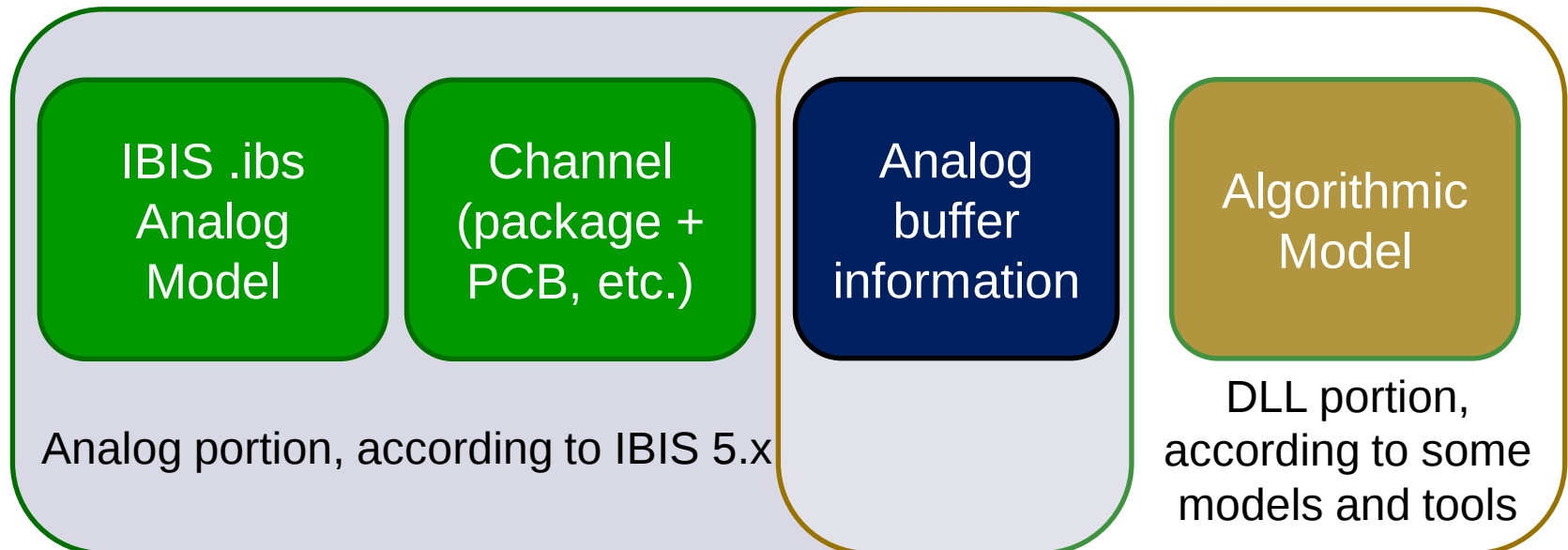
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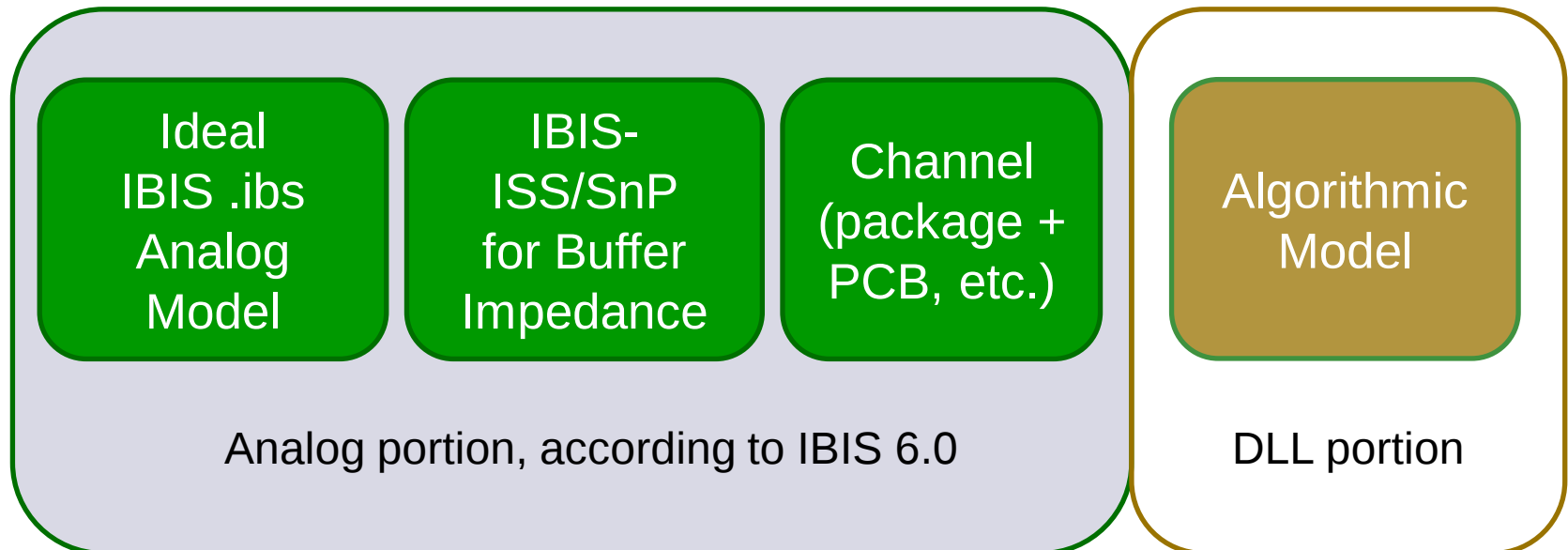
Issues to Resolve

- 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?