Chair’s Status Report

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Intel Corp.
Chair, IBIS Open Forum

Presented by Randy Wolff,
Micron Technology

European IBIS Summit
at SPI 2015
Berlin, Germany
May 13, 2015

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

- An Organizational Note

- IBIS Features and Updates

- IBIS Development Data
  - Version Life Cycles and Open BIRDs

- Planning for the Future
  - Annual Development Schedule Proposal
The IBIS Parent Organization

- In July 2013, IBIS moved from TechAmerica to SAE International
  - International standards organization
  - Founded 1905 as the Society of Automobile Engineers

- IBIS is formally part of the SAE Industry Technical Consortia (SAE ITC)
  - Allows entity-based organization of IBIS to continue
  - Billing, balloting and membership communications will be through SAE ITC
  - [http://www.sae-itc.org](http://www.sae-itc.org)
Changes and New Versions

- **IBIS 6.1 is now in editorial review**
  - Editorial Task Group semi-weekly
  - Changes focus on Algorithmic Modeling, with package and multi-lingual improvements

- **Major interconnect changes being finalized**
  - Interconnect Task Group developing proposal
  - BIRD to address modern packaging, including on-die interconnect
  - Links IBIS-ISS to IBIS, including Touchstone
IBIS 6.1 BIRDs

- BIRD155.2 New AMI API to Resolve Dependent Model Parameter
- BIRD167.1 Table Corrections for Tx Jitter Parameters and Ignore_Bits
- BIRD168.1 Handling of Overclocking Caused by Delay in Waveform Tables
- BIRD169.1 DLL Dependency Checking
- BIRD170 Delete Extra Paragraph for Ports under [External Circuit]
- BIRD171.3 Clarify that Empty Root Name is Not Permitted in AMI Files
- BIRD172.2 Extend Multilingual Parameter and Converter Parameter Rules
- BIRD173.3 Package RLC Matrix Diagonals
- BIRD174.1 Quote Character Clarifications

Parser development is already underway
What’s Next?

- IBIS 7.0 will include major feature changes
  - Backchannel equalization support
  - Redriver AMI flow clarifications
  - Integration of expanded package proposal

- Some BIRDs still in development
  - PAM-4 signaling
  - Direction specification for AMI models
  - Package pin mapping clarifications
How Long Do Versions “Live”?

<table>
<thead>
<tr>
<th>Version</th>
<th>Days Between Approval and Successor</th>
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<tbody>
<tr>
<td>Average</td>
<td>695</td>
</tr>
<tr>
<td>Min</td>
<td>392</td>
</tr>
<tr>
<td>Max</td>
<td>1456</td>
</tr>
<tr>
<td>STD</td>
<td>318</td>
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</table>

1 year line
Pending BIRDs

- 12 BIRDs are open, on packages & advanced AMI

![Bar chart showing days pending for open BIRDs]

- Longer than any other BIRD
- Longer than any IBIS version!
PLANNING THE FUTURE
Proposed Release Schedule for IBIS

- Development would be based on a 9-month cycle
  - Feedback from 2014 DesignCon IBIS Summit

- Each development cycle will be in three parts
  - Technical Period
    - February - July
    - August 1 - close technical changes
  - Editorial Period
    - August - September
    - Nov. 1 - close & vote on final document
  - Quiet Period (Events, Holidays)
    - November - January
How Does This Work?

Parser development can start as early as this point

Technical Development

Editing

BIRD Development for a Given Version

Editorial Work

Document vote & release here

2015 European IBIS Summit
Why This Schedule?

- Calendar can limit potential interactions
  - End-of-year holidays/shutdowns
  - Fall Asian IBIS Summits and preparation
  - New Year celebrations in Asia
  - DesignCon Summit and preparation
  - July/August vacation schedule in Europe

- Member companies are likely affected by the same calendar items
  - Peak work periods are Sept. - Oct. and March - May
IBIS Numbering Proposal

- Specification moves to date codes
  - Year and month of approval (e.g., 2015.11)
  - Multiple releases in the same month unlikely
  - Major/minor release distinction goes away
  - [IBIS Ver] and AMI_Version affected

- Parser versions track specifications
  - Parser uses specification release number, for features
  - Parser updates use additional numbers
    - e.g., 2015.11 r01 or similar
  - Name changes to simply “ibischk”
Implications

- If implemented immediately...
  - Next major version would not be 7, but 2015.11
  - BIRDs for 2015.11 must be approved on/before Aug. 1, 2015

- Membership dues in 2016
  - Parser development fees become part of membership dues

Is this schedule realistic for the IBIS community? Can tools and design cycles absorb annual updates?
Many Thanks to Our Sponsors!

- ANSYS
- CST
- Mentor Graphics
- Synopsys
- Zuken

Their technical and logistical support makes IBIS specifications and events possible!
Q/A
## Pending BIRDs

<table>
<thead>
<tr>
<th>ID#</th>
<th>Issue Title</th>
<th>Requester</th>
<th>Submitted</th>
<th>Days Open</th>
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<tbody>
<tr>
<td>125.1</td>
<td><strong>Make IBIS-ISS Available for IBIS Package Modeling</strong></td>
<td>Arpad Muranyi, Mentor Graphics</td>
<td>21-Oct-10</td>
<td>1665</td>
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<tr>
<td>128.2</td>
<td><strong>Allow AMI_parameters_out to pass AMI_parameters_in data on calls to AMI_GetWave</strong></td>
<td>Walter Katz, SiSoft</td>
<td>11-Mar-11</td>
<td>1524</td>
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<tr>
<td>147</td>
<td><strong>Back-channel support</strong></td>
<td>Marcus Van Ierssel, Snowbush IP; Kumar Keshavan, Sigtry, Inc.; Ken Willis, Sigtry, Inc.; Walter Katz, SiSoft</td>
<td>18-Oct-11</td>
<td>1303</td>
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<td>157</td>
<td><strong>Parameterize [Driver Schedule]</strong></td>
<td>Arpad Muranyi, Mentor Graphics; Romi Mayder, Xilinx</td>
<td>24-Jan-13</td>
<td>839</td>
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<td>158.3</td>
<td><strong>AMI Touchstonefile (R) Analog Buffer Models</strong></td>
<td>Walter Katz, Signal Integrity Software, Inc.</td>
<td>20-Feb-13</td>
<td>812</td>
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<tr>
<td>161.1</td>
<td><strong>Supporting Incomplete and Buffer-only [Component], Descriptions</strong></td>
<td>Michael Mirmak, Intel Corp.</td>
<td>8-May-13</td>
<td>735</td>
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<td>163</td>
<td><strong>Instantiating and Connecting [External Circuit] Package Models with [Circuit Call]</strong></td>
<td>Arpad Muranyi &amp; John Angulo, Mentor Graphics; Ambrish Varma &amp; Brad Brim, Cadence Design Systems, Inc.</td>
<td>9-Jan-14</td>
<td>489</td>
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<td>164</td>
<td><strong>Allowing Package Models to be defined in [External Circuit]</strong></td>
<td>Ambrish Varma &amp; Brad Brim, Cadence Design Systems, Inc.; Arpad Muranyi, Mentor Graphics</td>
<td>9-Jan-14</td>
<td>489</td>
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<td>165</td>
<td><strong>Parameter Passing improvements for [External Circuit]s</strong></td>
<td>Arpad Muranyi &amp; John Angulo, Mentor Graphics; Ambrish Varma &amp; Brad Brim, Cadence Design Systems, Inc</td>
<td>9-Jan-14</td>
<td>489</td>
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<td>166</td>
<td><strong>Resolving problems with Redriver Init Flow</strong></td>
<td>Walter Katz, Signal Integrity Software, Inc. Darshan Shah, F5Networks, Inc.</td>
<td>2-Apr-14</td>
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