ECALS/JEITA

National/Panasonic

JEITA EDA Activity and Proposal

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IBIS SUMMIT at Santa Clara

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Today's Presenter (JEITA/EDA WG member)

A.Ito Panasonic

Title: JEITA EDA activity and Proposal

T.Horigme SHINDENGEN

Title: To be model of Circuit Simulation

Y.Fujishiro TDK

Title: Proposal of Standardization of Passive components model

Contents(A.Ito)

1. JEITA EDA Activity
2. IBIS in the Digital Consumer Appliance
3. Proposal for Joint Activity

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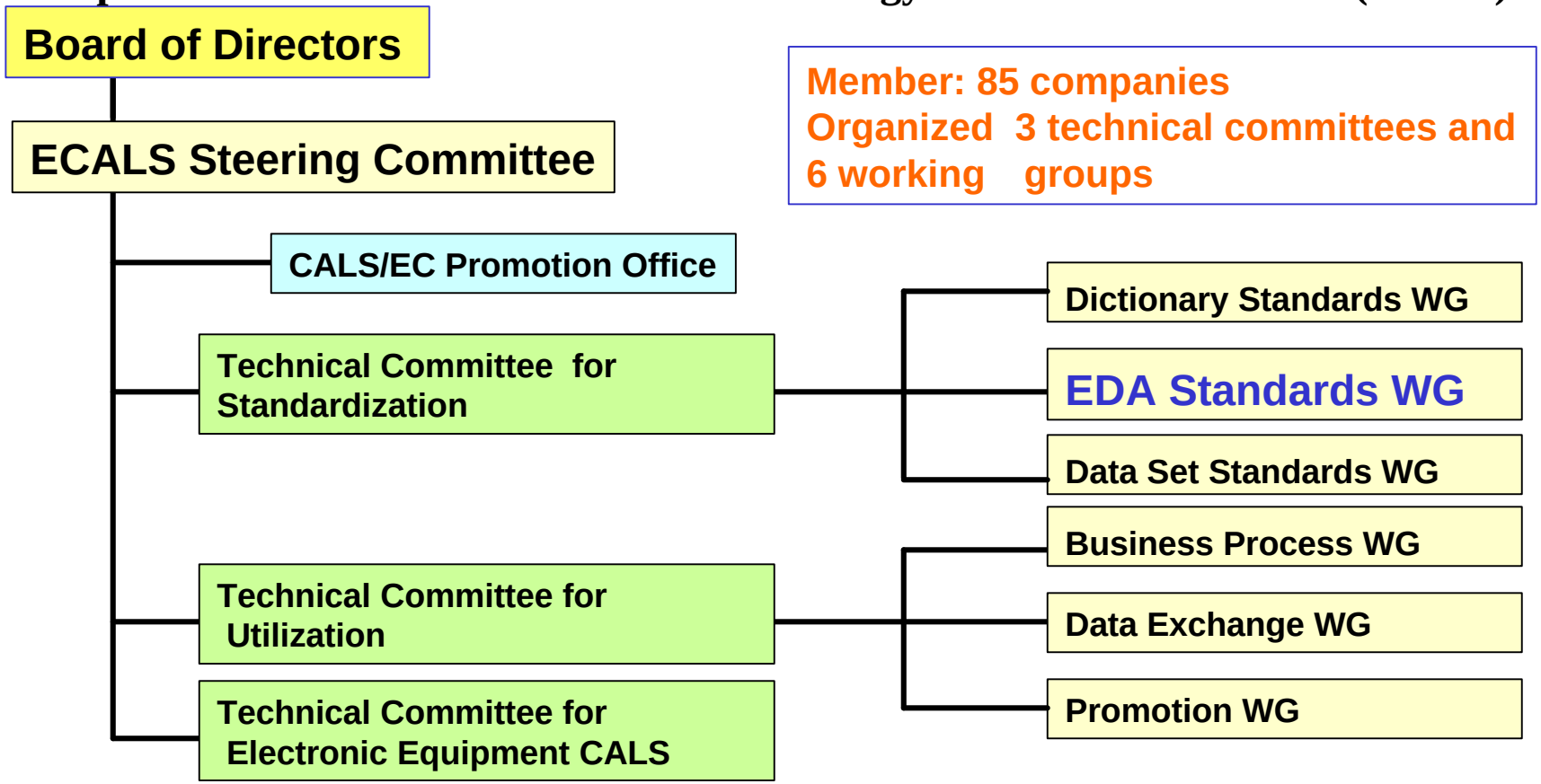
JEITA EDA Activity

Promotion Organization

The Electronic Industries Association of Japan(EIAJ) and Japan Electronic Industry Development Association (JEIDA) merged effective November 1, 2000, to enter the 21 century as the Japan Electronics and Information Technology Industries Association (JEITA).



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Issues and Needs in Catalog Data Distribution

¦ Semiconductors and Electronic Components

Issues

- Data request in specific format ,per need, such as design, procurement, etc.
- Limitations in homepage access
- Apprehensions over data use after access

Needs

- Access to latest information and avoiding information access based on specified format
- Increase homepage access
- Minimize risks in providing own data

Access to own company data and standardization

¦ Electronics equipment company

Issues

- Information access in vendor-specific format
- Burgeoning websites
- Data for viewing only; obsolete data
- Cost of data re-entry in own database

Needs

- Access to latest data on new components, or discontinued parts, etc.
- Reduce re-entry steps in own database
- Computer-based automatic search, sharing
- Direct use of vendor data

Standardization and digitalization

Direction of Solution for ECALS

Standardization of dictionary for catalog data development

Elaborating on international standards for business applications

Standardization of data distribution

Development of content use guidelines for Internet distribution

Promoting commercialization

Use of project achievements in commercialization

Promote business application

Companies to provide commercialization service to be recruited from JEITA members

Activities of the ECALS Steering Committee

Disclosure of ECALS Dictionary Version 1
Catalog content disclosure exceeds 246,000

- Version 1 of the IEC-compliant dictionary disclosure at website from April 2001.
- Terms for catalog data and content distribution based on ECALS standards to be established. Contents disclosures: 246,000 (as of December 2001)

Future Plans

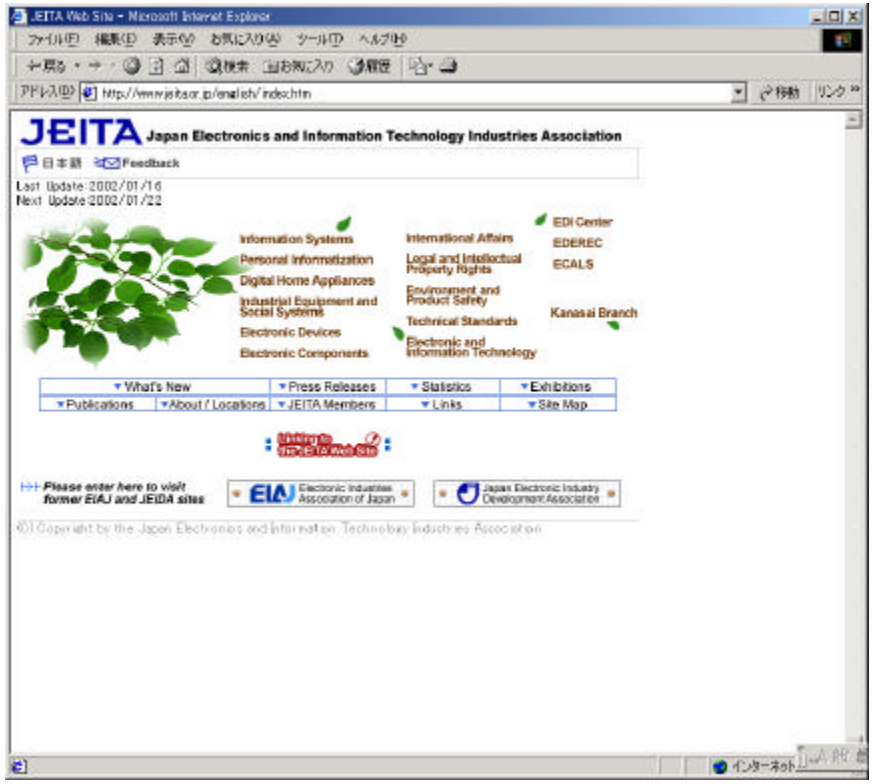
Expansion of standardization effort

- Expansion of ECALS dictionary and promote wider
- Expansion into EDA (electronic design automation)
- Greater coordination in standardization with overseas organizations

Commercialization activities

- Standardization of business processes and of corresponding data exchanges
- Promote wider use of ECALS catalog data
- Development and standardization of all B-to-B processes through coordination with EDI Center

JEITA Website



URL: http://www.jeita.or.jp/

URL: http://www.e-parts.org

* Opened in June 2000 to promote ECALS commercialization effort

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EDA WG Activity

EDA WG Activity

Members

Appliance & Components company Total:8
Matsushita, Mitsubishi , SHINDENGEN,TDK,Murata etc

Purpose

Discussion meeting between Users and Providers
for EDA Simulation model of Non-IC Components

Activity

Investigation & Discussion on SI/EMI Simulation Models

Applications

Digital Consumer Appliance

Term

April 2001 ~ March 2002

Conclusion of Discussion Meeting

? ***Take a Step Forward*** ?

1. Most important issue for users is to get new device models timely. Any data format (IBIS,SPICE etc) is acceptable.

Just in time in design process & Create distribution channel

2. Efforts must be made to expedite format standardization as well as to expand the range of application.(Included Board level)

Active together with EIA/IBIS Open forum

Not only semiconductor but also non- semiconductor devices

3. To be supported by EDA tools.

CAD and Simulation tools & Easy to use

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IBIS in the Digital Consumer Appliance

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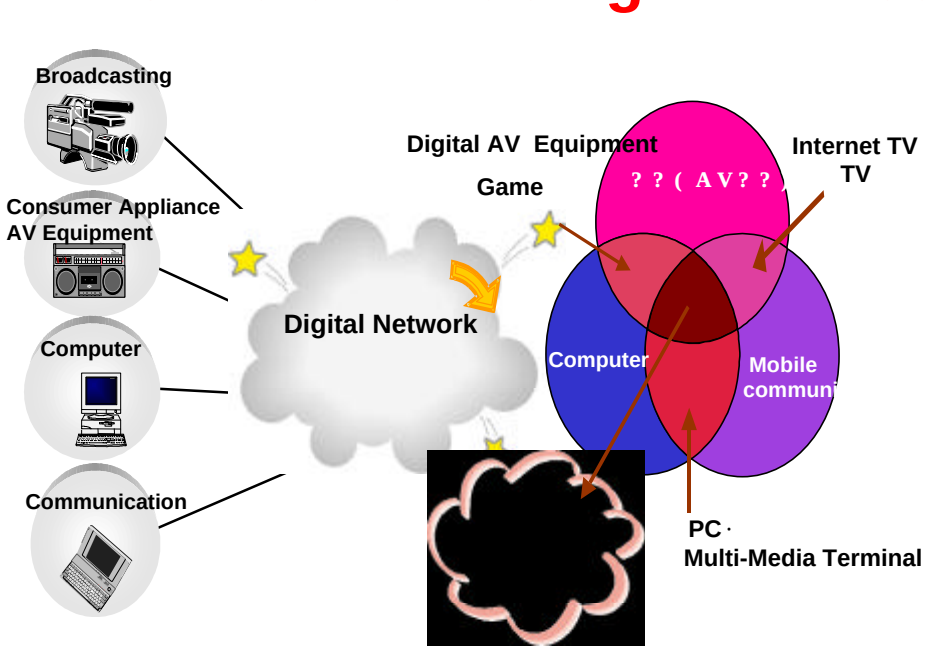
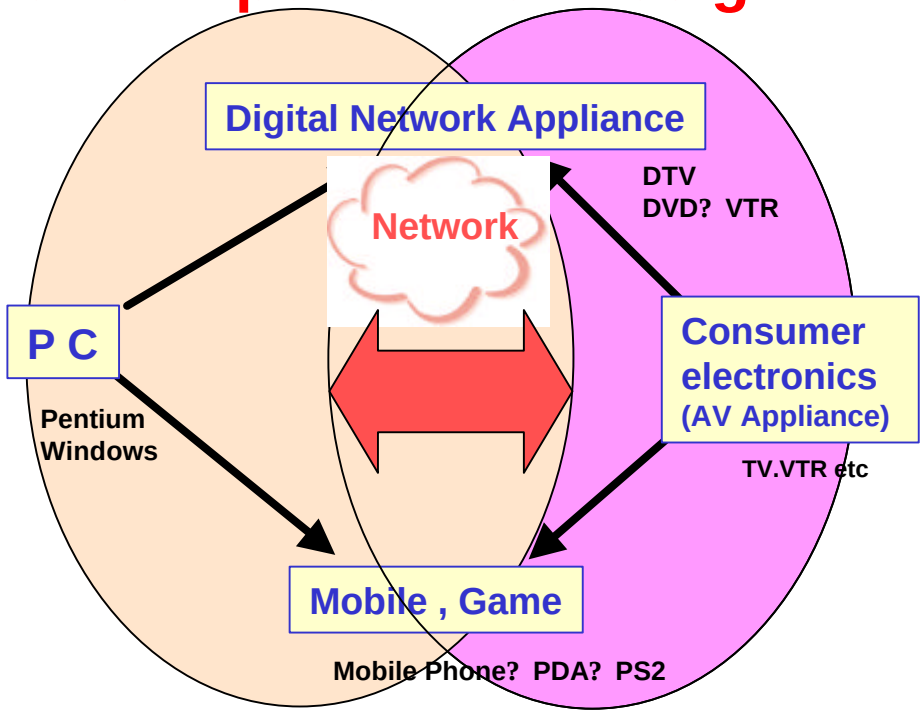
Digital Network Consumer Appliance

From Now

Fusion Appliance : PC + AV equipment + Mobile

Simulation using EDA Model is important for Design.





Digital Appliance

Business world

IBIS applications for digital consumer appliance in MEI

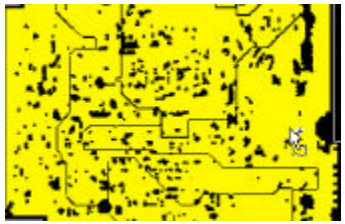
- Current … SI simulation
  - Clock line, memory bus(Rambus), LVDS, …
    - Signal quality, timing, cross talk
    - Evaluate dumping resistor value
    - Make design rule
- Future (or just start trial) … PI, EMC
  - Power/GND bounce, SSO noise, optimize decoupling capacitors
  - EMI noise

Current issues concerning SI simulation (1)

- IBIS availability
  - ASIC, Gate Array: sometimes not available in early development stage
    - Cannot use floor planning simulation
  - Connector, filter, passive discrete components model: not IBIS (of course!)
    - SI Simulation tools are not always support SPICE model or S-parameter itself. So we need some conversion or modification to such models, or use SPICE for SI simulation.
  - File quality: sometimes has even syntax error.
    - Monotonous I-V curves
    - Inaccurate package model value
    - Bad waveform data

•Only post simulation
•Use similar model

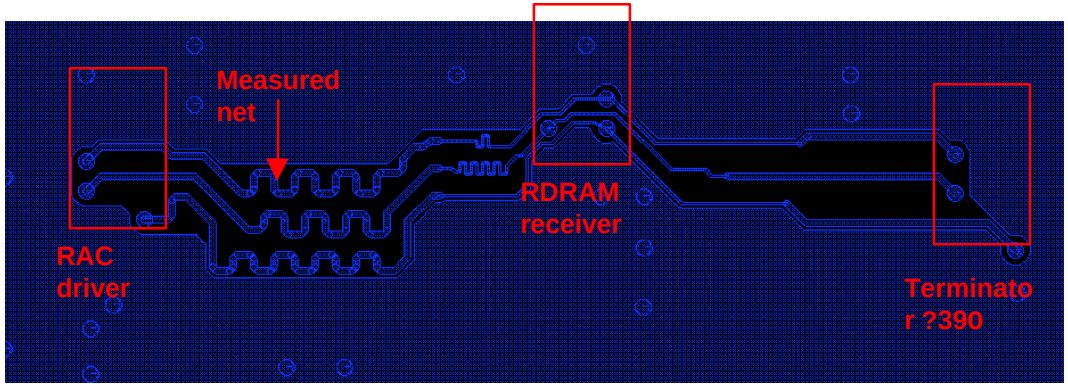
Current issues concerning SI simulation (2)



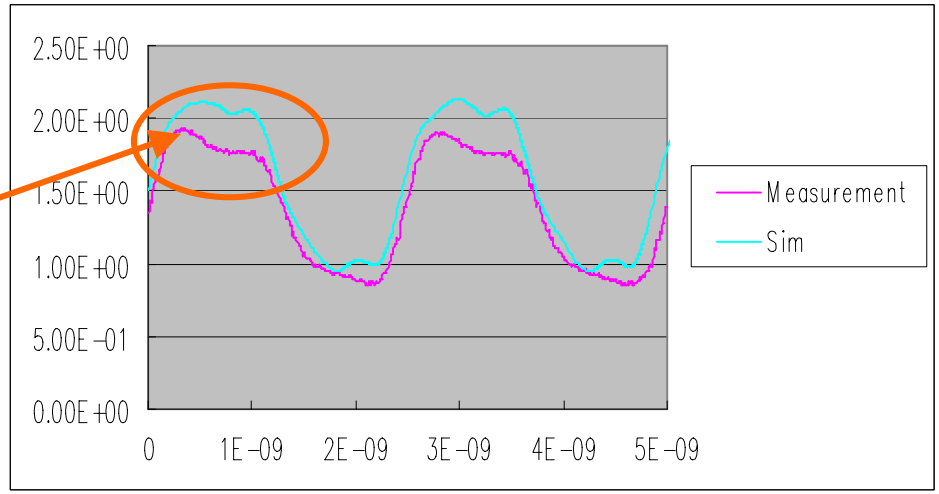
- Accuracy
  - High density PCB's Power/GND plane is not ideal
    - Severe, unexpected condition for LSI operation ? IBIS model condition
    - Typ/min/max condition in IBIS is not always suitable to ***real board***
    - Difficult to model the non-ideal plane
  - Accuracy of IBIS file itself
    - Monotonous I-V curves, bad package parameter, bad waveform
    - Sometimes need modification to the files
  - IBIS treatment in the simulators seems different
    - Simulation results are sometimes different from simulator A and B

IBIS Simulation (currently trying)

- RDRAM data line

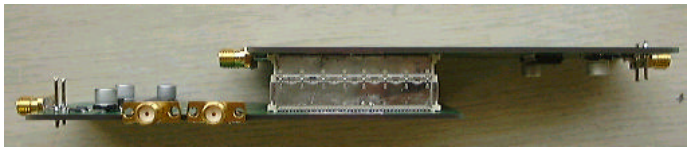


•IBIS model is not optimized (Just created from SPICE model)
•Real Chip can change driver strength, but SPICE model can't do it

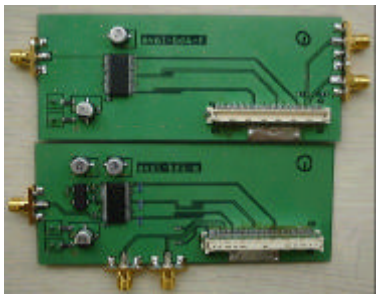


IBIS v.s. SPICE (1)

- **Test board conditions**

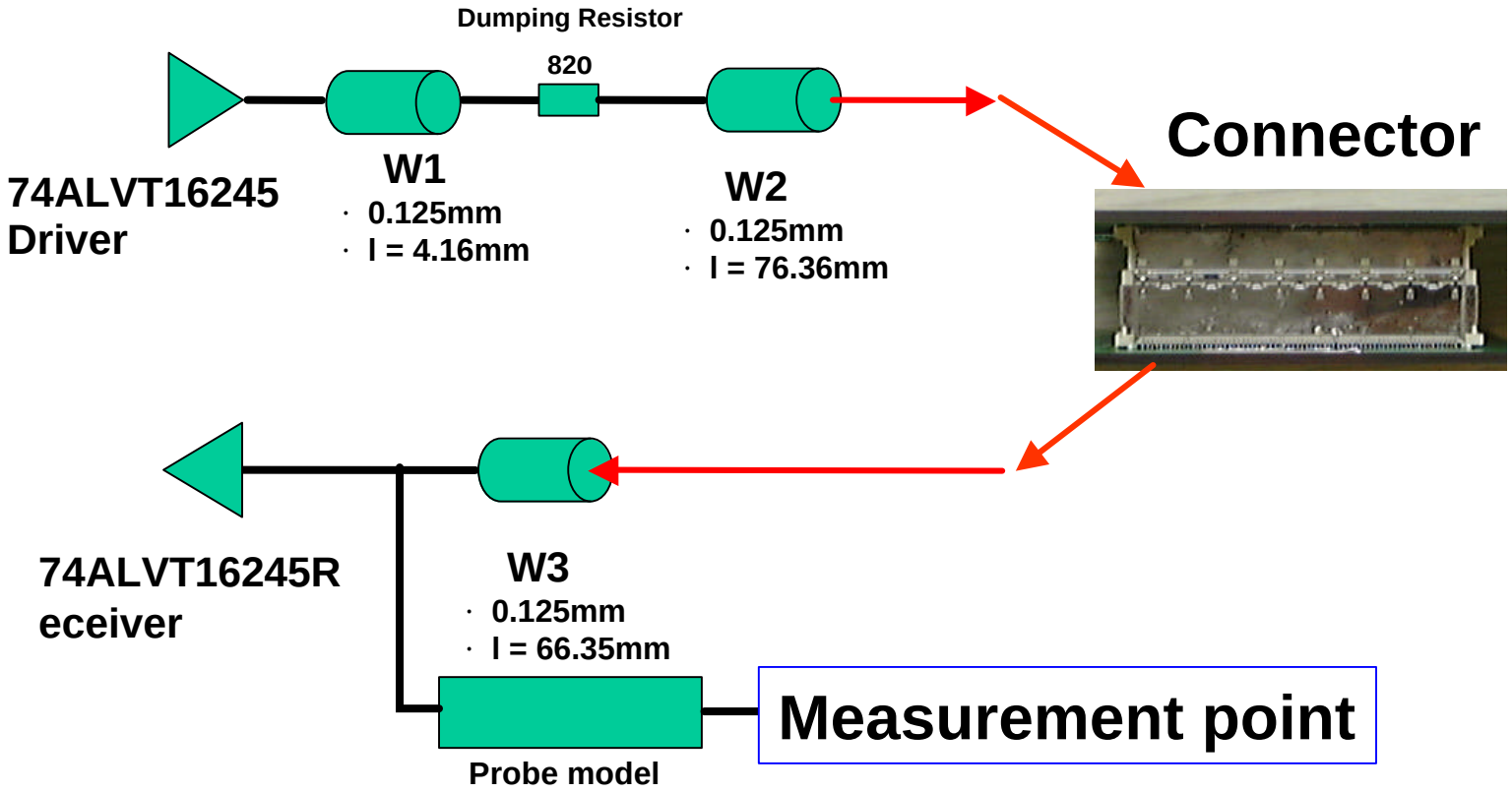


  - Driver & receiver: Philips 74ALVT16245
  - Connector: AMP FH connector,(SPICE model is supplied by AMP)
  - Transmission line: HSPICE W-element, SI tool X's tline model (Power/GND is ideal)



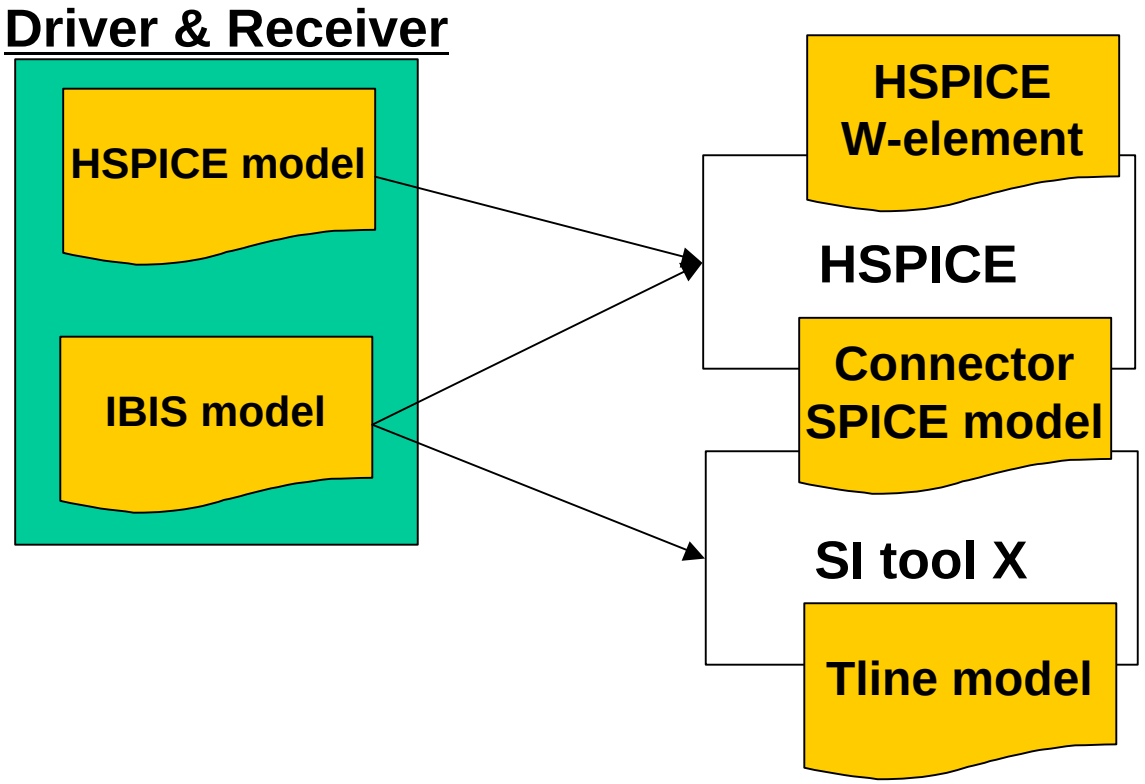
IBIS v.s. SPICE (2)

- **Test board schematics**



IBIS v.s. SPICE (3)

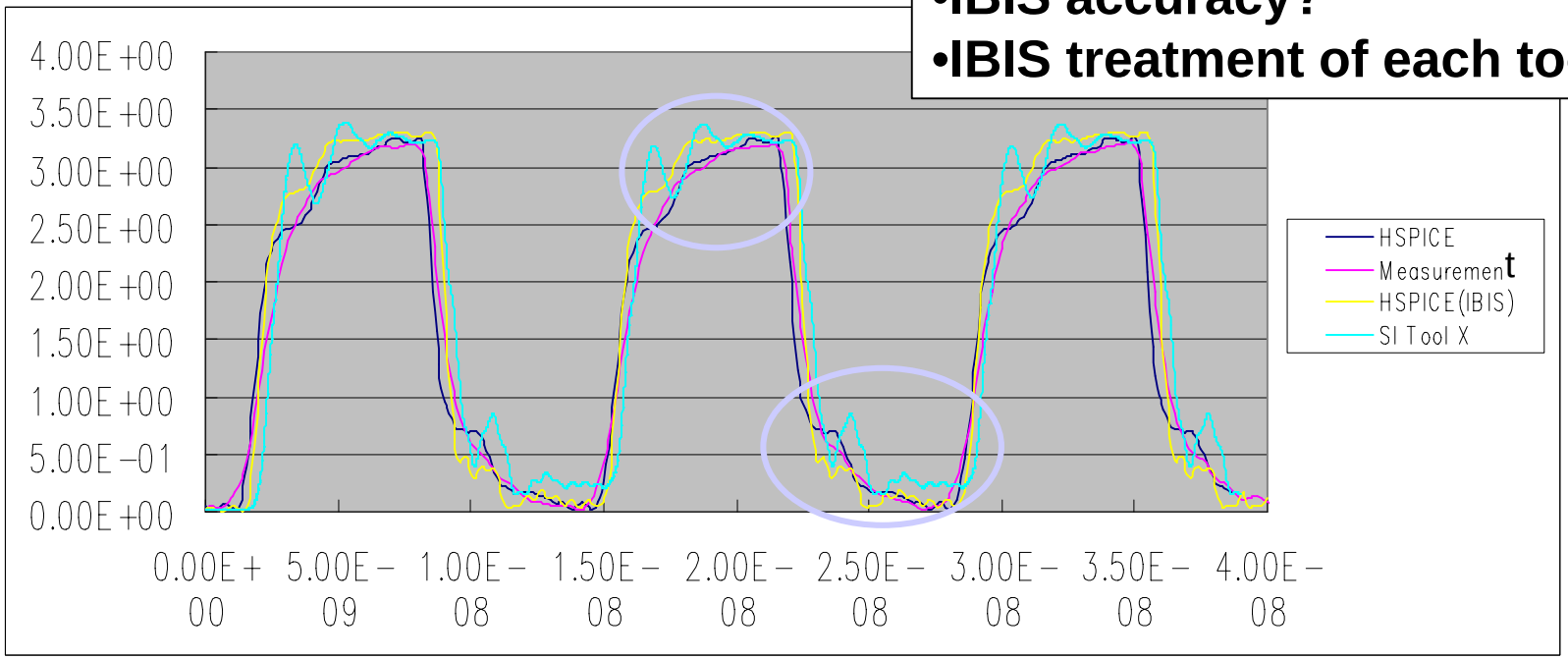
- **Simulation conditions**



IBIS v.s. SPICE (4)

- **Results**
  - Not so serious difference, but …

•IBIS accuracy?
•IBIS treatment of each tools?



Proposal to IBIS

- Specify not only data description but also more kind of data conditions to increase accuracy
  - Sometimes IBIS data conditions(R_fixture, R_load, …) are different from real application use
- To obtain more high file quality
  - Standard IBIS generation tool for the component manufacturer, or IBIS user(not only syntax check, but also data accuracy)
- More challenge
  - New data description or structure for PI/EMI simulation
- Include passive component description into IBIS
  - If all component models on the PCB become IBIS, simulators become more smart

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Proposal for Joint Activity

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Joint Activity *with* IBIS Open Forum and JEITA EDA-WG

1. High speed Digital board design is the most important for Digital network appliance,DTV,DVD and Mobile etc.
   LSI, Module,Connector, PKG and Passive components are on Board. (*System Board*)
2. Board level simulation is necessary to reduce the design time&cost.
   Device model standardization including Passive components are necessary for it.

Suggestion:

We suggest you to cooperate together between IBIS Open forum and JEITA/EDA WG for IBIS-X or New IBIS standardization including Passive components





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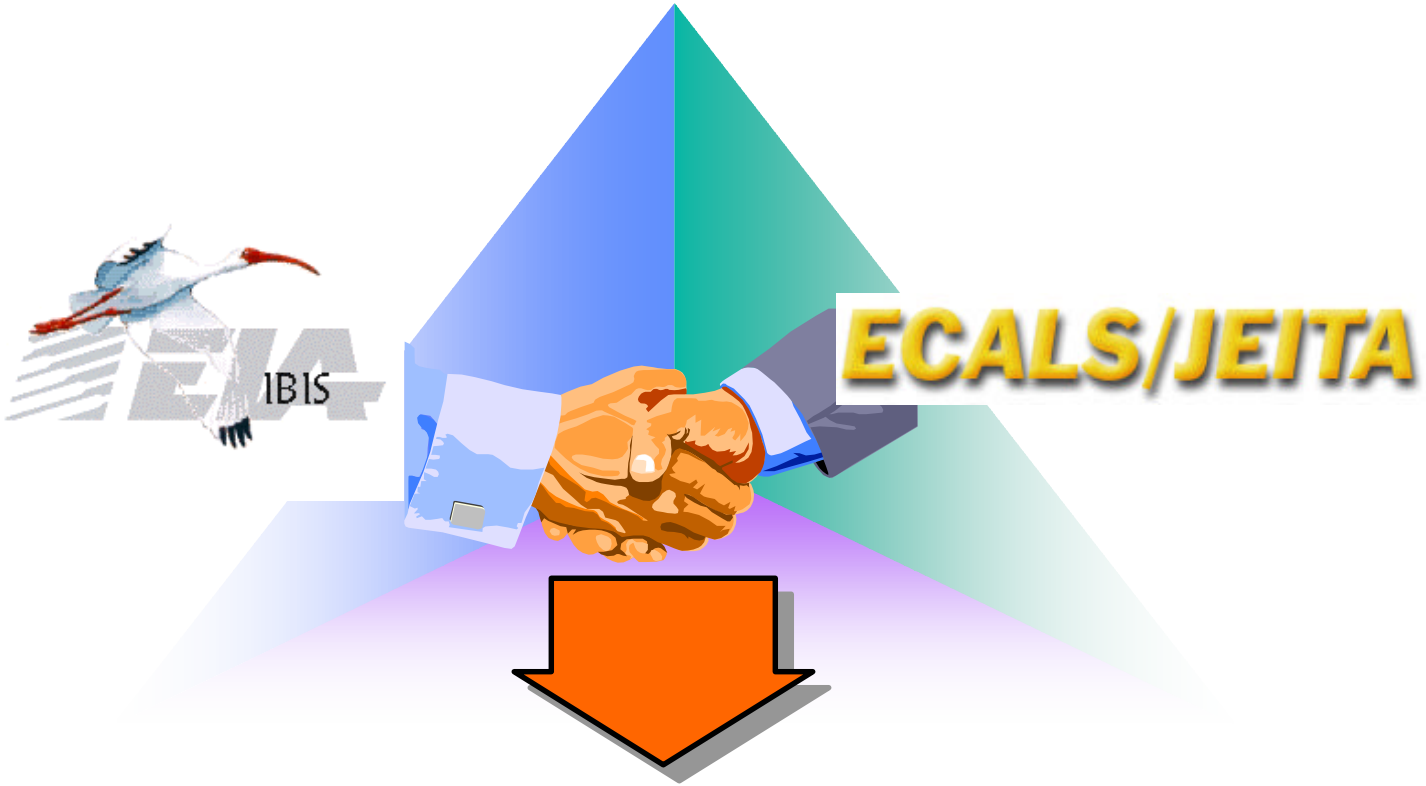

For New

IBIS Standard

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IBIS: A national bird in Japan

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Thank you very much for your Attention

Japan Electronics and Information Technology Industries Association
and
Panasonic