IBIS Model Engineering Application Possibility

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IBIS model for SI simulation





IBIS model for PI & EMI simulation?









IBIS model has a lot of useful information



This useful information is used for commercial PI & EMI simulation.

Differential EMI is inspected by using the potential of IBIS model



IBIS data

The edge rate information in IBIS model is used automatically for accuracy amelioration of **EMI Check**





Result

IBIS data

Differential EMI is inspected by using the potential of IBIS model (Even for Pre-simulatiom)



IBIS data

S.S.N PI Noise is simulated by using the potential of IBIS model

		Votege (+)
[Package]		
R_pkg	216.94mOhm	- Annan maken
L_pkg	10.66nH	V
C_pkg	0.87pF	
[Pin] signal	_name model_name R_pin L_pin C_pin	
9 CE	c_buf 199.14m 16.8n 0.86p	
10 NC	NC	
11 NC	NC	15 · · · · · · · · · · · · · · · · · · ·
12 VCC	POWER 186.84m 7.99n 2.54p	
13 VSS	GND 222.33m 8.90n 2.52p	
14 NC	NC	- monter ward from
15 NC	NC	V V
16 CL	in1_buf 202.00m 16.7n 0.87p	
	\square	
		Tauba
		100 (00)
	IRIZ data	Kesuit

Today, not only SI but PI & EMI simulation are important

Problems are,

The excitation data of PI & EMI are usually not in the device data sheet or only worst case data is written.

We have great simulators but difficult to get input parameters from data sheet for useful functions.

but IBIS model could be "useful data sheet".

Introducing the way to turn some ideas of IBIS model possibilities into a commercial reality

Challenge EMI virtual prototyping of PCB



CPM is used for EMI simulation of IC package as Excitation

CPM: Chip Power Model





Excitation

Icursig1 p1 p7 pwl(

Then, what is used as Excitation for PCB EMI simulation?





CASE1: Only CPM is used for EMI simulation as Excitation



Excitation

CASE2: CPM and datasheet information are used for EMI simulation as Excitation



Signal Current Model From Data Sheet (worst case)

Excitation

Create ideal current model from IBIS model as Excitation



CASE3: "CPM" and ideal current model are used for EMI simulation as Excitation



Signal Current Model From IBIS Model (Ideal)

Excitation

Create current model from IBIS model SI simulation as Excitation

1.5

1.4 1.3

1.2

0.9

0.8 0.7 0.6 0.4 0.3 0.2 0.1 0.1

-0.2

-0.3





Transfer to CPM format

Icursig1 p1 p7 pwl(
+ 0.000000ps -0.000005
+ 200.00000ps -0.000377
+ 350.000000ps -0.000526
+ 500.00000ps -0.000382
+ 650.00000ps -0.000330
+ 800.00000ps -0.000506
+ 950.000000ps -0.000853
+ 1100.00000ps -0.005766
+ 1250.000000ps -0.007243
+ 1400.000000ps -0.005612
+ 1550.000000ps -0.006288
+ 1700.00000ps -0.006697
+ 1850.000000ps -0.005576
+ 2000.000000ps -0.003236
+ 2150.000000ps -0.002159
+ 2300.000000ps -0.002279
+ 2450.000000ps -0.003529
+ 2600.000000ps -0.005887
+ 2750.000000ps -0.004768
+ 2900.00000ps -0.003654
+ 3050.000000ps -0.002156
+ 3200.000000ps -0.000911
+ 3350.000000ps -0.000498

CASE4: CPM & IBIS model engineering are used for EMI simulation as Excitation



Excitation

Conclusion

IBIS model is good data sheet with great potential for PI & EMI simulation

The value of IBIS model depends on user's ideas

Do not wait for new versions; just use current version

