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# IBIS Model as De-Facto Standard

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# Prologue

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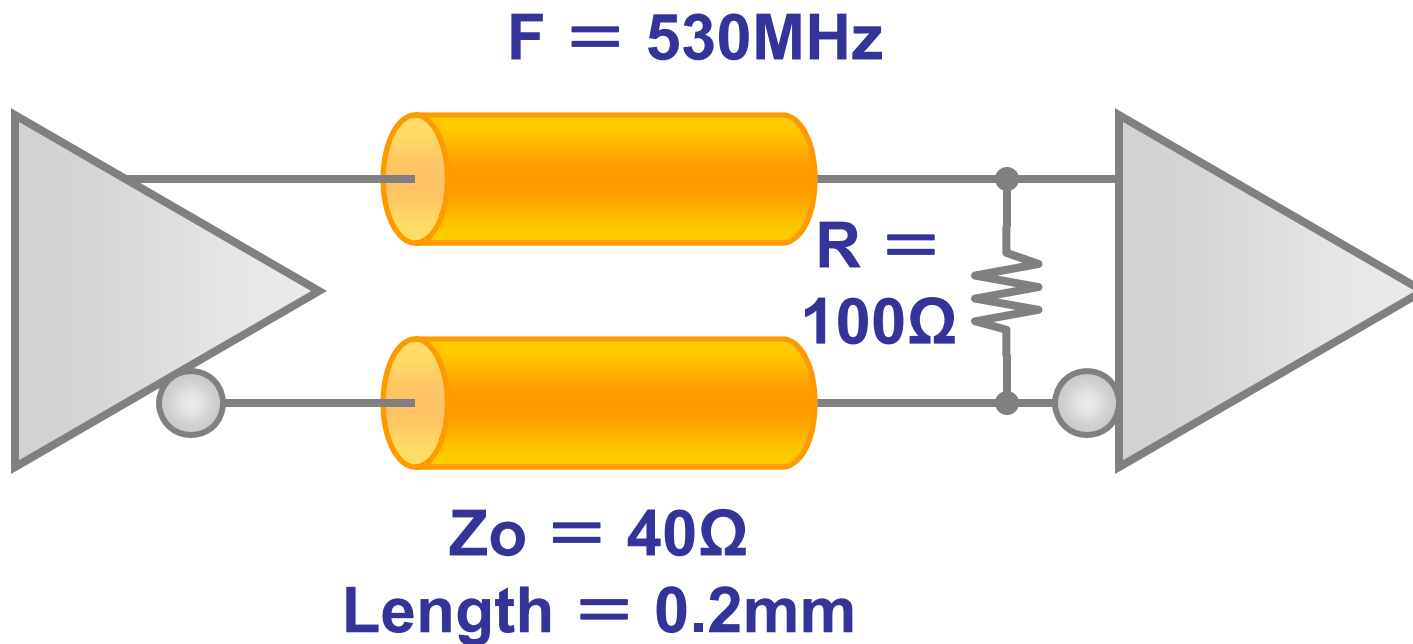
When do you do SI simulation by using same IBIS model but different SI simulators,  
do you think the results will be same?

I did an experiment.



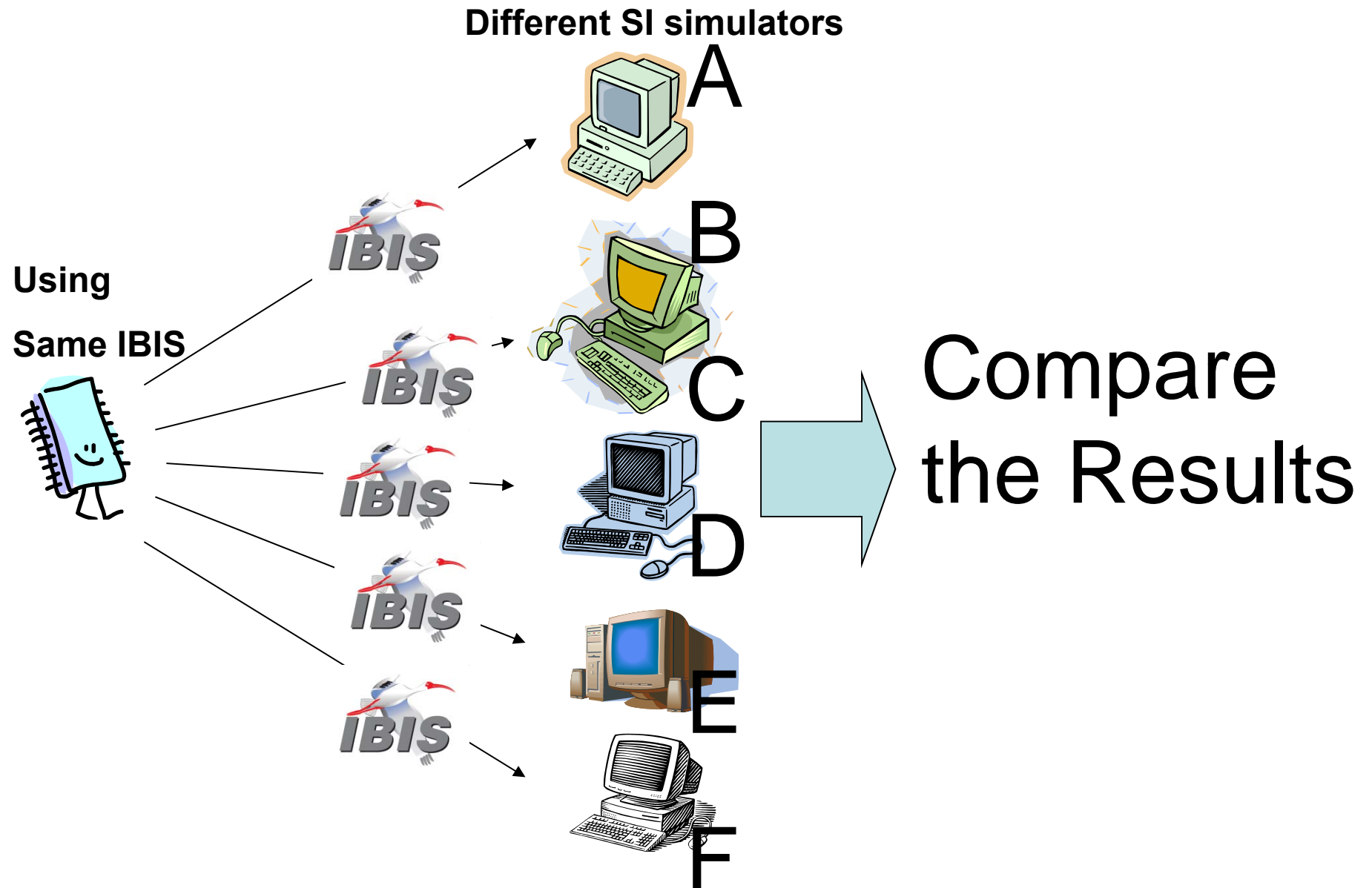
# The experiments.

Using Same circuit



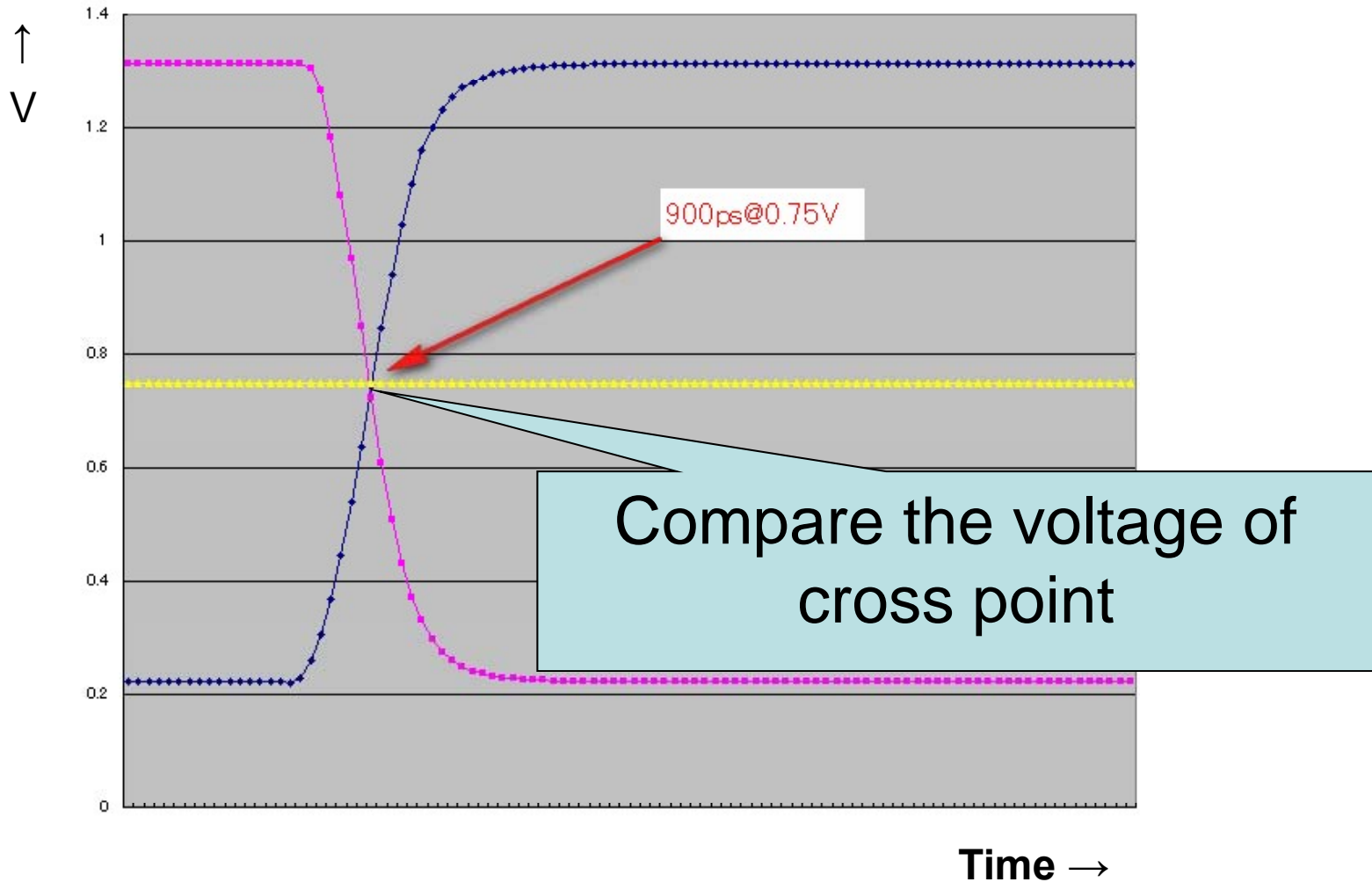


# The experiments.





# Compare point





# The Results

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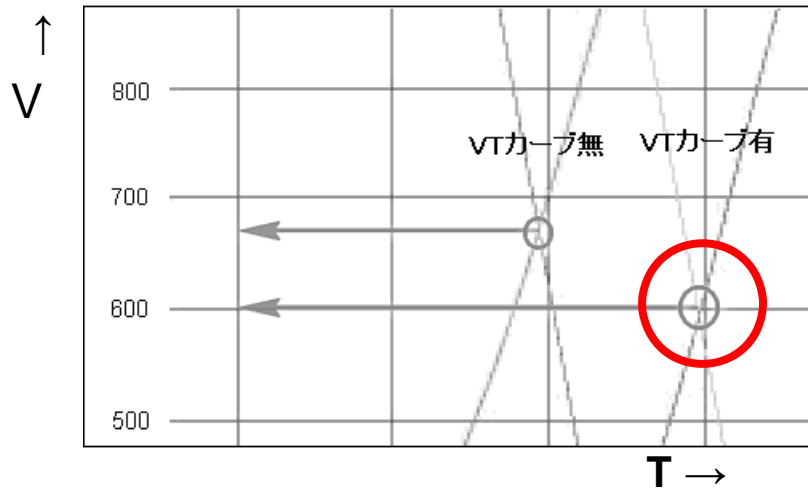
SI simulator	Cross Point Voltage
A	<b>600 mV</b>
B	<b>730 mV</b>
C	<b>620 mV</b>
D	<b>750 mV</b>
E	<b>764 mV</b>
F	<b>705 mV</b>

The results are all different

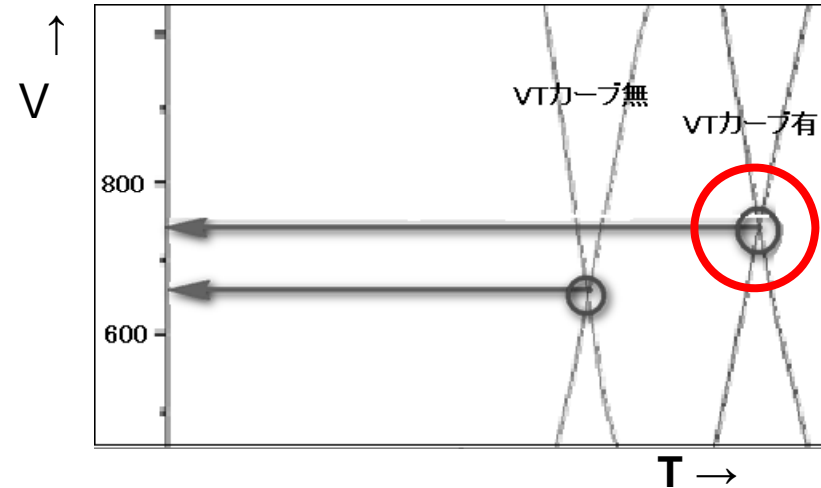


# The Results

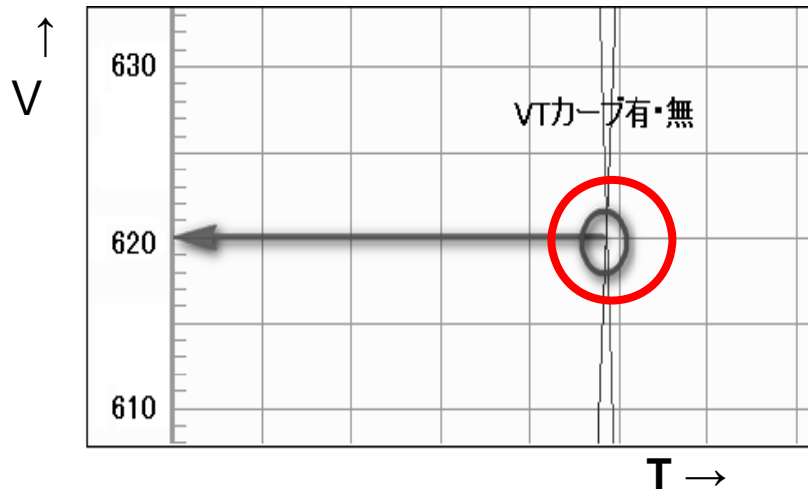
Simulator A



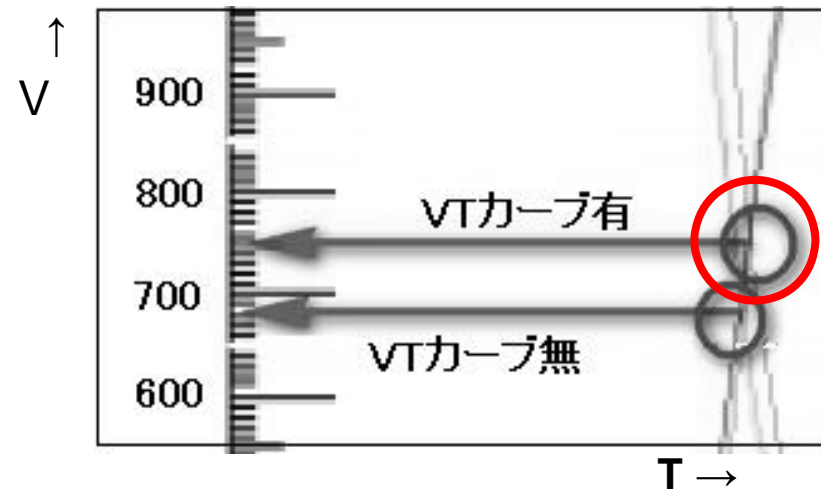
Simulator B



Simulator C

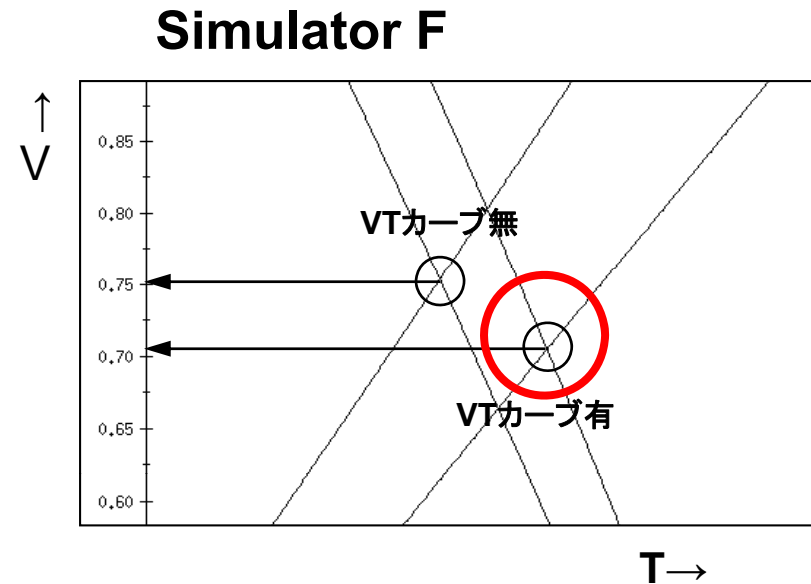
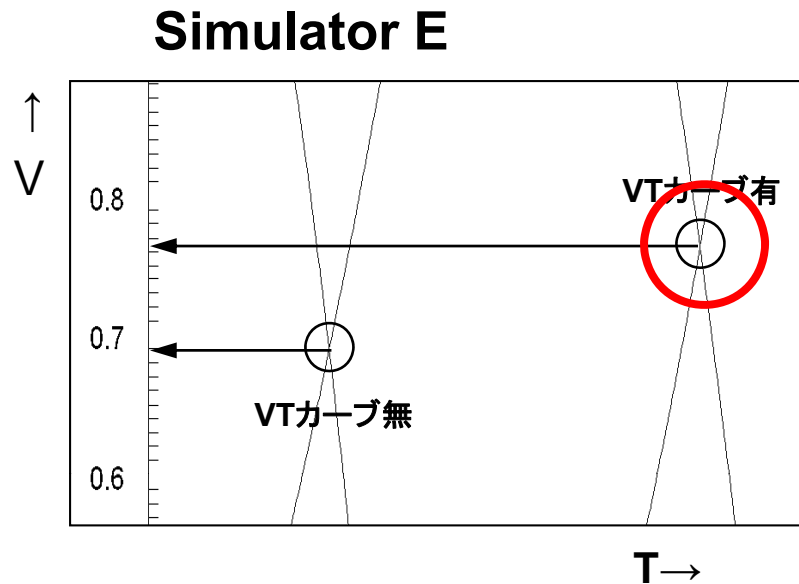


Simulator D





# The Results



All of 6 simulator's results  
are different!!

(MAX 160mV difference)



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SI simulator	Cross Point Voltage
A	<b>600 mV</b>
B	<b>730 mV</b>
C	<b>620 mV</b>
D	<b>750 mV</b>
E	<b>764 mV</b>
F	<b>705 mV</b>

What can I believe?



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We are in era of

Can get IBIS model easily

Can trust IBIS model

Many Thanks for JEITA

**IBIS Quality Framework**



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But,

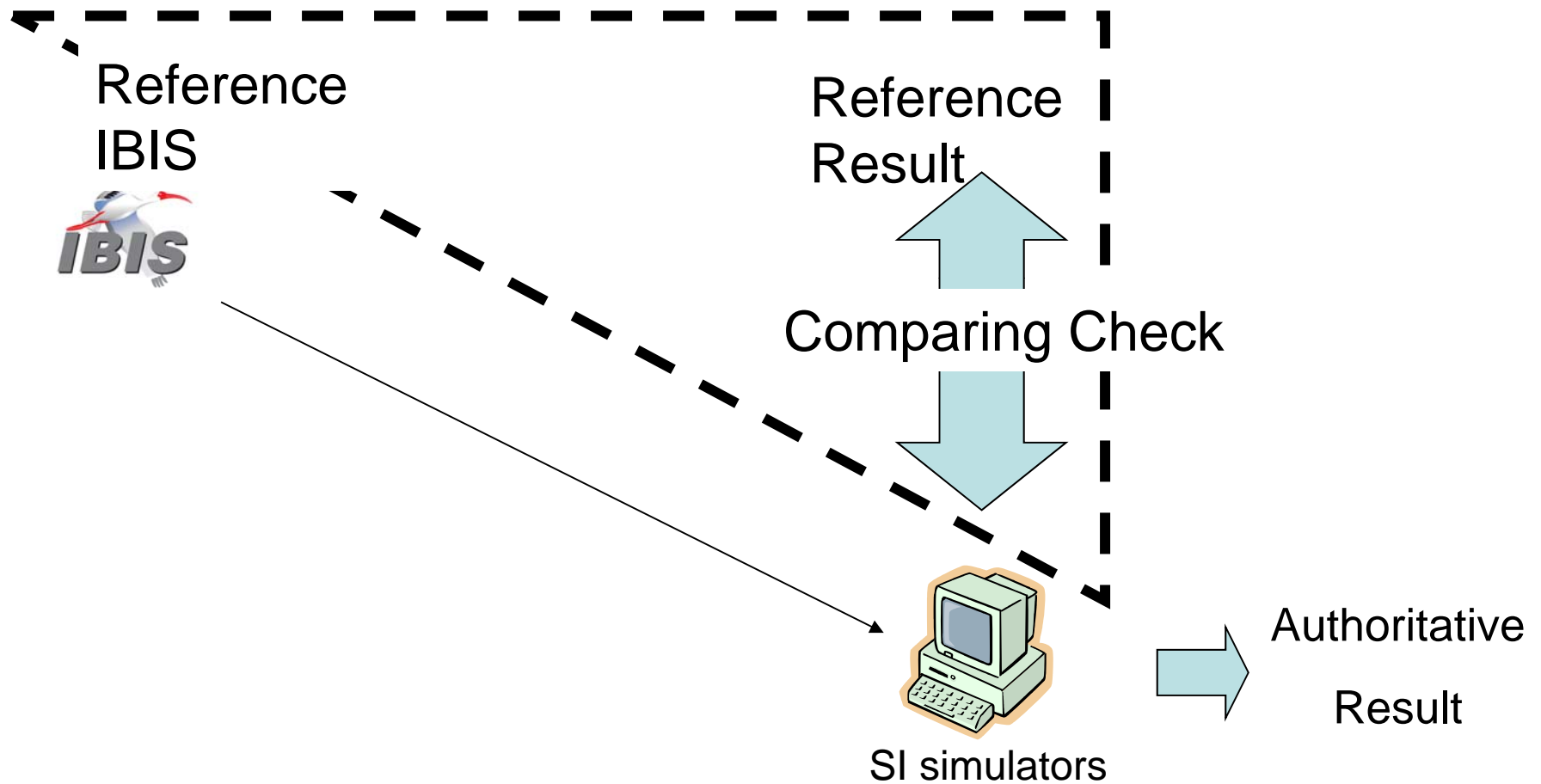
In order to use IBIS model as real **de-facto standard**,

Now, we may need to have

The quality framework for SI simulators



# The quality framework for SI simulators





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**Many thanks for helping to do the experiment.**

IBITECH Co., LTD  
BOARD TECHNOLOGY Ltd  
TOWA Electronics Co., Ltd  
Cedar-Creek Co., Ltd  
Xpeedic Technology, Inc.



# Epilogue

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I did another experiment.

Same IBIS and same SI simulator but  
different Engineer.

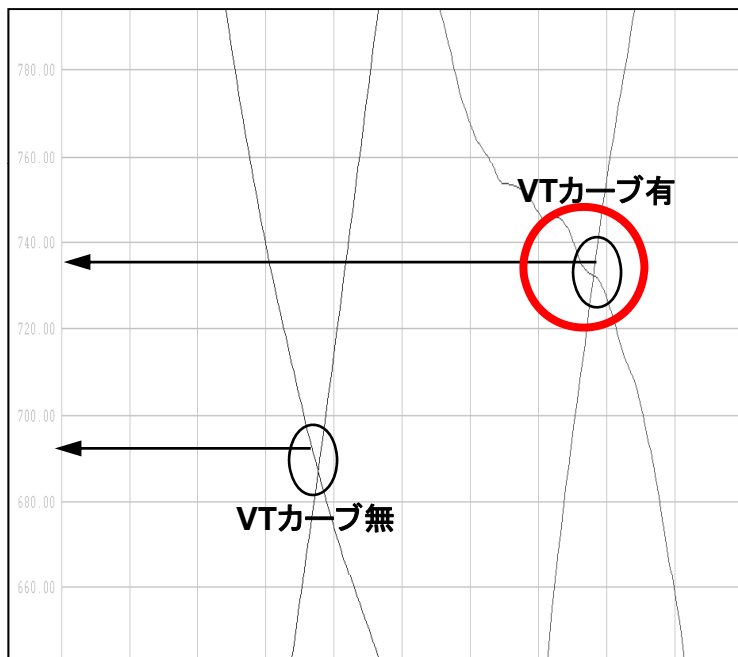
The result was.....



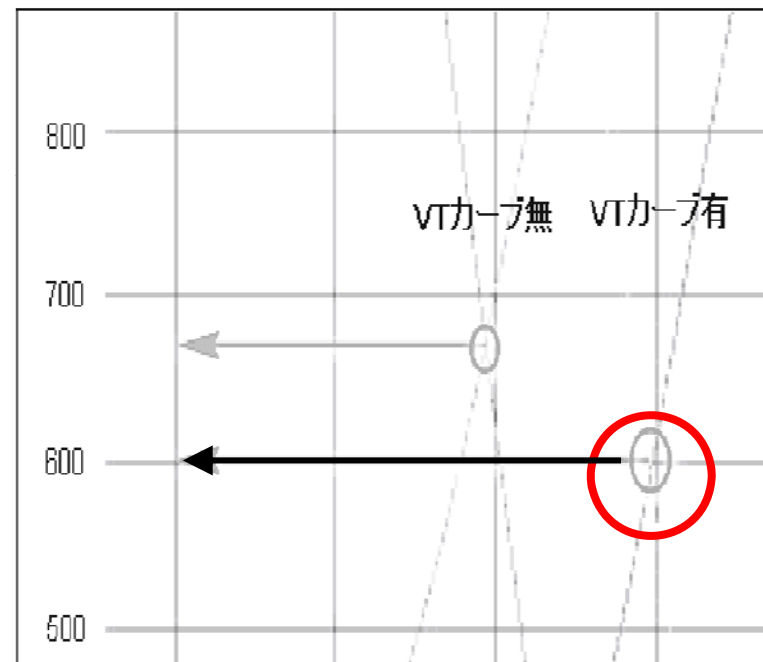
The result was.....

Different!

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Engineer Mr. A



Engineer Mr. B

Engineer's skill makes the result difference



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Today, IBIS model is getting to be real de-facto standard.

Every body can get good IBIS.

So many engineers ( From beginner to expert) are using IBIS model.

But, SI simulator is not magical tool yet.

It still depends on engineer's skill.

We need

- GOOD IBIS and GOOD TOOL
- GOOD Engineer and GOOD support.