**Verification of PI3USB30532 IBIS model**

1. **Introduction:**

To verify the correlation between the ibis model and hspice model, we need to do some simulations:

1. SWITCH1:
2. The frequency of signal is **500MHz**:

vin1 dp0n 0 pulse ( 1.0 0 0 .1n .1n 0.9n 2n)

vin2 dp0p 0 pulse ( 0 1.0 0 .1n .1n 0.9n 2n)

1. Add **50Ω** pull-down resistor and **without** pull-down capacitance to the output;
2. Add **50Ω** pull-down resistor and **10pF** pull-down capacitance to the output;
3. The frequency of signal is **2.50GHz**:

vin1 dp0n 0 pulse ( 1.0 0.0 0 20p 20p 180p 400p )

vin2 dp0p 0 pulse ( 0.0 1.0 0 20p 20p 180p 400p )

1. Add **50Ω** pull-down resistor and **without** pull-down capacitance to the output;
2. Add **50Ω** pull-down resistor and **10pF** pull-down capacitance to the output;
3. SWITCH2:
4. The frequency of signal is **500MHz**:

vin1 auxp 0 pulse ( 1.0 0 0 .1n .1n 0.9n 2n)

vin2 auxn 0 pulse ( 0 1.0 0 .1n .1n 0.9n 2n)

1. Add **50Ω** pull-down resistor and **without** pull-down capacitance to the output;
2. Add **50Ω** pull-down resistor and **10pF** pull-down capacitance to the output;
3. The frequency of signal is **2.50GHz**:

vin1 auxp 0 pulse ( 1.0 0.0 0 20p 20p 180p 400p )

vin2 auxn 0 pulse ( 0.0 1.0 0 20p 20p 180p 400p )

1. Add **50Ω** pull-down resistor and **without** pull-down capacitance to the output;
2. Add **50Ω** pull-down resistor and **10pF** pull-down capacitance to the output;
3. **Conclusion:**
4. For SWITCH1 and SWITCH2, the simulation results of IBIS model can match quite well with the HSPICE model at most of the different load conditions.

1. **Simulation Result:**
2. SWITCH1:

PI3USB30532

**OUT0**

**SCL\_C**

**SDA\_C**

**OUT1**

**SCL\_C**

**SDA\_C**

R

**SCL\_C**

**SDA\_C**

R

**SCL\_C**

**SDA\_C**

DP0P

**SCL\_C**

**SDA\_C**

C

**SCL\_C**

**SDA\_C**

C

**SCL\_C**

**SDA\_C**

**Differential Signals**

**SCL\_C**

**SDA\_C**

**Output**

**SCL\_C**

**SDA\_C**

DP0N

**SCL\_C**

**SDA\_C**

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RX2P

**SCL\_C**

**SDA\_C**

RX2N

**SCL\_C**

**SDA\_C**

**IN0**

**SCL\_C**

**SDA\_C**

**IN1**

**SCL\_C**

**SDA\_C**

1. The frequency of signal is **500MHz**:
2. Add **50Ω** pull-down resistor and **without** pull-down capacitance to the output;



1. Add **50Ω** pull-down resistor and **10pF** pull-down capacitance to the output;



1. The frequency of signal is **2.50GHz**:
2. Add **50Ω** pull-down resistor and **without** pull-down capacitance to the output;



1. Add **50Ω** pull-down resistor and **10pF** pull-down capacitance to the output;



1. SWITCH2:

PI3USB30532

**OUT0**

**SCL\_C**

**SDA\_C**

**OUT1**

**SCL\_C**

**SDA\_C**

R

**SCL\_C**

**SDA\_C**

R

**SCL\_C**

**SDA\_C**

AUXP

**SCL\_C**

**SDA\_C**

C

**SCL\_C**

**SDA\_C**

C

**SCL\_C**

**SDA\_C**

**Differential Signals**

**SCL\_C**

**SDA\_C**

**Output**

**SCL\_C**

**SDA\_C**

AUXN

**SCL\_C**

**SDA\_C**

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SBU1

**SCL\_C**

**SDA\_C**

SBU2

**SCL\_C**

**SDA\_C**

**IN0**

**SCL\_C**

**SDA\_C**

**IN1**

**SCL\_C**

**SDA\_C**

1. The frequency of signal is **500MHz**:
2. Add **50Ω** pull-down resistor and **without** pull-down capacitance to the output;



1. Add **50Ω** pull-down resistor and **10pF** pull-down capacitance to the output;



1. The frequency of signal is **2.50GHz**:
2. Add **50Ω** pull-down resistor and **without** pull-down capacitance to the output;



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