

1. By adding command “report noise” to run_pts.tcl file and running it, we can get two pins which are two victim receivers of above-low noise and below-high noise. Based on these victim receivers, we can get the corresponding victim driver by searching in verilog file. Then we add command “report_noise_calculation” to run_pts.tcl and got the aggressors. Finally by locating the capacitances in SPEF file, we can get the final results.

	victim driver	victim receiver	Worst aggressor	net
Above low	u_logic/Wqm2_z4_reg/QN	u_logic/FE_PHC719_n5042/A	u_logic/FE_PHN1021_U295_Z_0	u_logic/n5042
Below high	u_logic/Vmj2z4_reg/QN	u_logic/FE_PHC716_n4980/A	u_logic/FE_PHN1031_U329_Z_0	u_logic/n4980

	Cc+Cw (fF)	Cc	Cw	expression	Results(V)
Above low	0.011777	0.00635186	0.00542514	$0=CwV2+(V2-vdd)Cc$	0.5067
Below high	0.0123425	0.00859948	0.00374302	$CwVdd=(Cw + Cc)V2$	0.3336

2. Considering it is a cross-chip signal, we may use Global r and c in calculation. According to the expression of calculating the minimal time:

$$t_{p,min} = (1.38 + 1.02\sqrt{1 + \gamma})L\sqrt{R_d C_d r c}$$

We can get $t_{p,min}=39.7713 * 10^{-11}=397.7 \text{ ps}$

3. Answers:

ITERATIONS	switching power	internal power	leakage power	total power
1	1.01e-03	7.34e-04	6.11e-04	2.35e-03
5	1.03e-03	7.41e-04	6.11e-04	2.38e-03
10	1.03e-03	7.24e-04	6.11e-04	2.36e-03

4. Plots:

