

Static Timing Analysis Interview Questions

Based on My personal interview(s) experience, I prepared this list. I hope this helps you all or at least it will show the path for STA learning's.

Assumption: Reader knows the definition of Setup & Hold time (at transistor level also ☺).

1. Complete STA flow.
 - a. What are the input files required?
 - b. After setting up the flow, first what you will check in both pre-layout & post-layout STA before fixing the timing violations?
2. How will you analyze the timing report?
 - a. After seeing report, immediately will you start fixing the violation by seeing the slack given in the report?
 - b. How you will approach?
3. Different methods of fixing the setup violations?
 - a. There are so many methods. Everybody will tell those methods, but they will expect, "Why you are approaching this method only?"
 - b. Why you will get setup violations?
4. Hold fixes are very easy to fix.
 - a. Everyone knows the solution: Inserting delay-buffer.
 - b. Before fixing the hold violation, what you will verify or simply you will insert the delay buffer by seeing the slack in report?
5. There is a term called "Cross-Talk". Due to this, we get timing violations, everybody can say that easily. But how that will create the timing violations?
 - a. Needs to be explained on paper with diagram. <You can impress them with the approach you follow>
 - b. Difference between Cross-Talk Noise & Cross-Talk dealy.
 - c. How you will fix those violations?
6. De-rates:
 - a. How de-rate values will apply to the launch/capture paths?
 - b. CRPR?
 - i. Will CRPR applicable to half-cycle timing paths? If yes, how? How its calculation is different from full-cycle timing path?
 - ii. Min-Pulse width checks & its relation to CRPR.
7. Best (w.r.t less run time) way to define timing exceptions?
8. How you will fix transition/max-cap violations? Cause for these violations?

Note: In my opinion, related to STA, if you prepare these concepts well, you can impress the interviewers very quickly with your answers/approach. Try to explain your answer with paper.

----- All the Best -----