

Synopsys DC and Timing Analysis

DAY 14

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What is PVT



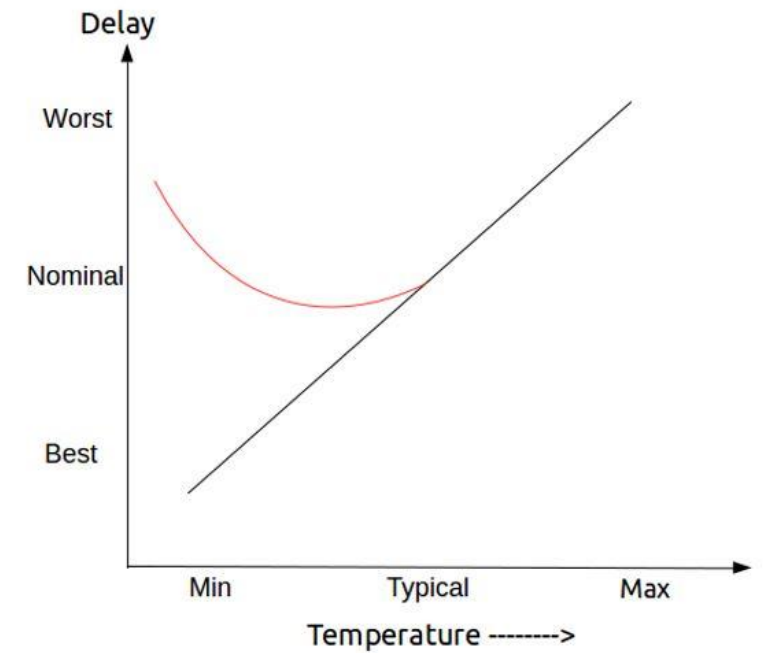
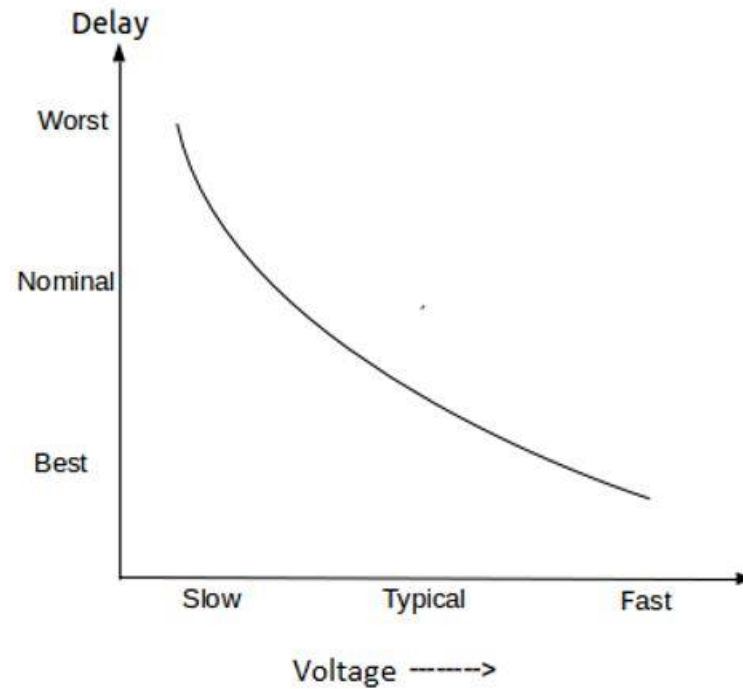
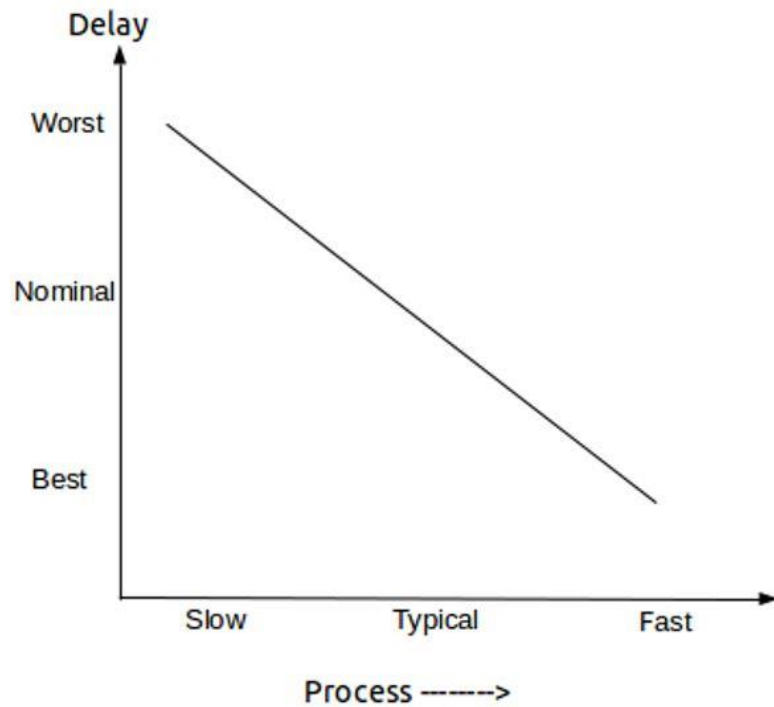
Corners of PVT

- Integrated circuits are designed in such a way that they can function in a wide variety of temperatures and voltages, rather than a single temperature and voltage.
- In order to make our chip to work after fabrication in all the possible conditions, we simulate it at different corners of process, voltage, and temperature.
- These conditions are called corners. All these three parameters directly affect the delay of the cell.

Understanding PVT

- **Process:** There are millions of transistors on the single-chip as we are going to lower nodes and all the transistors in a chip cannot have the same properties. Process variation is the deviation in parameters of the transistor during the fabrication.
- **Voltage:** As we are going to the lower nodes the supply voltage for a chip is also going to less. Let's say the chip is operating at 1.2V. So, there are chances that at certain instances of time this voltage may vary.
- **Temperature:** When a chip is operating, the temperature can vary throughout the chip. This is due to the power dissipation in the MOS-transistors.

PVT Graphs



Your Tasks

- **Task 1:**

Use the timing libs for different PVT corners by using the following GitHub repo: [vsdpcvrd/resources/timing_libs at main · Geetima2021/vsdpcvrd \(github.com\)](https://github.com/Geetima2021/vsdpcvrd)

- **Task 2:**

Document the different PVT corners WNS, WHS, TNS values in the form of a table as shown below: [170959322-b3c3cedd-1df8-4567-99d3-e905f9bdc393.png \(268×418\) \(user-images.githubusercontent.com\)](https://user-images.githubusercontent.com/170959322/b3c3cedd-1df8-4567-99d3-e905f9bdc393.png)

References

- [System on a chip – Wikipedia](#)
- [PVT \(Process, Voltage, Temperature\) - VLSI- Physical Design For Freshers \(physicaldesign4u.com\)](#)

Thank You!