

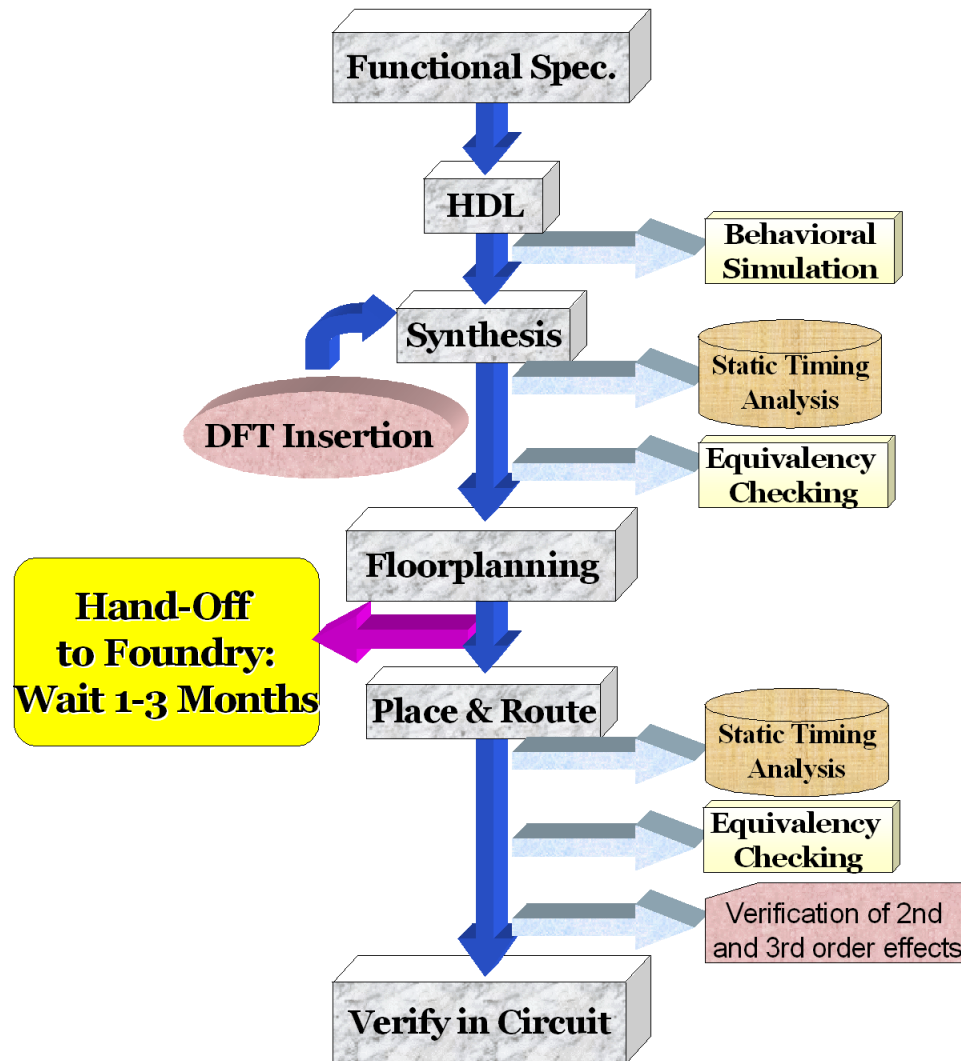
COMPUTER SYSTEMS ORGANIZATION

Introduction -- Spring 2010 -- IIIT-H -- Suresh Purini

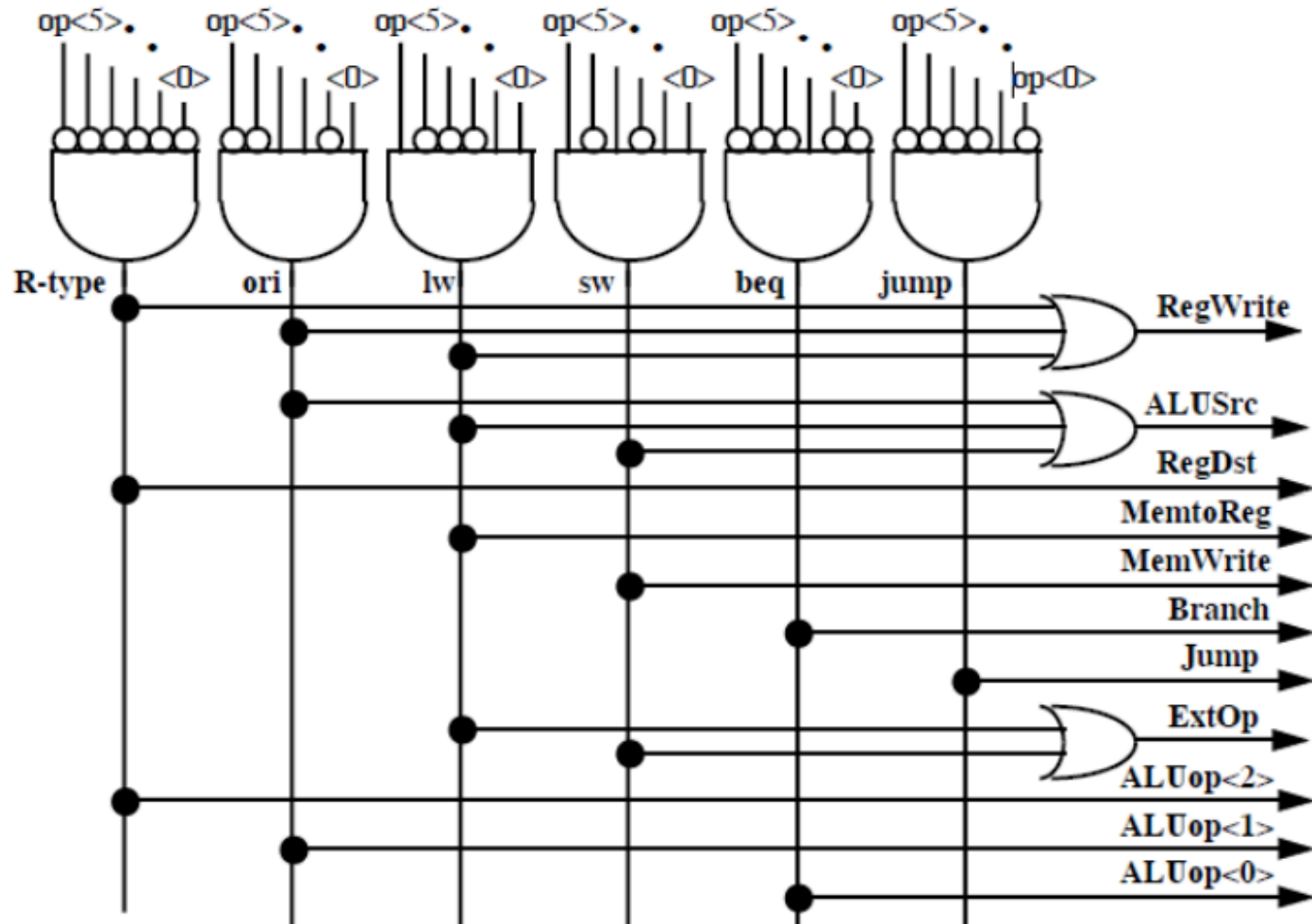
What is an ASIC?

- ❑ A chip that is custom designed for a specific application.
- ❑ Designed by a company for self use or for a specific customer
 - ❑ Targeting a specific application and a very specific system.
 - ❑ Customize for high performance and low power for the given system
- ❑ ASIC need not be just digital logic - can be digital or analog or mix of both
- ❑ Example - A 24x24 10G ethernet switch that is custom designed for a specific system to meet performance/power demand.

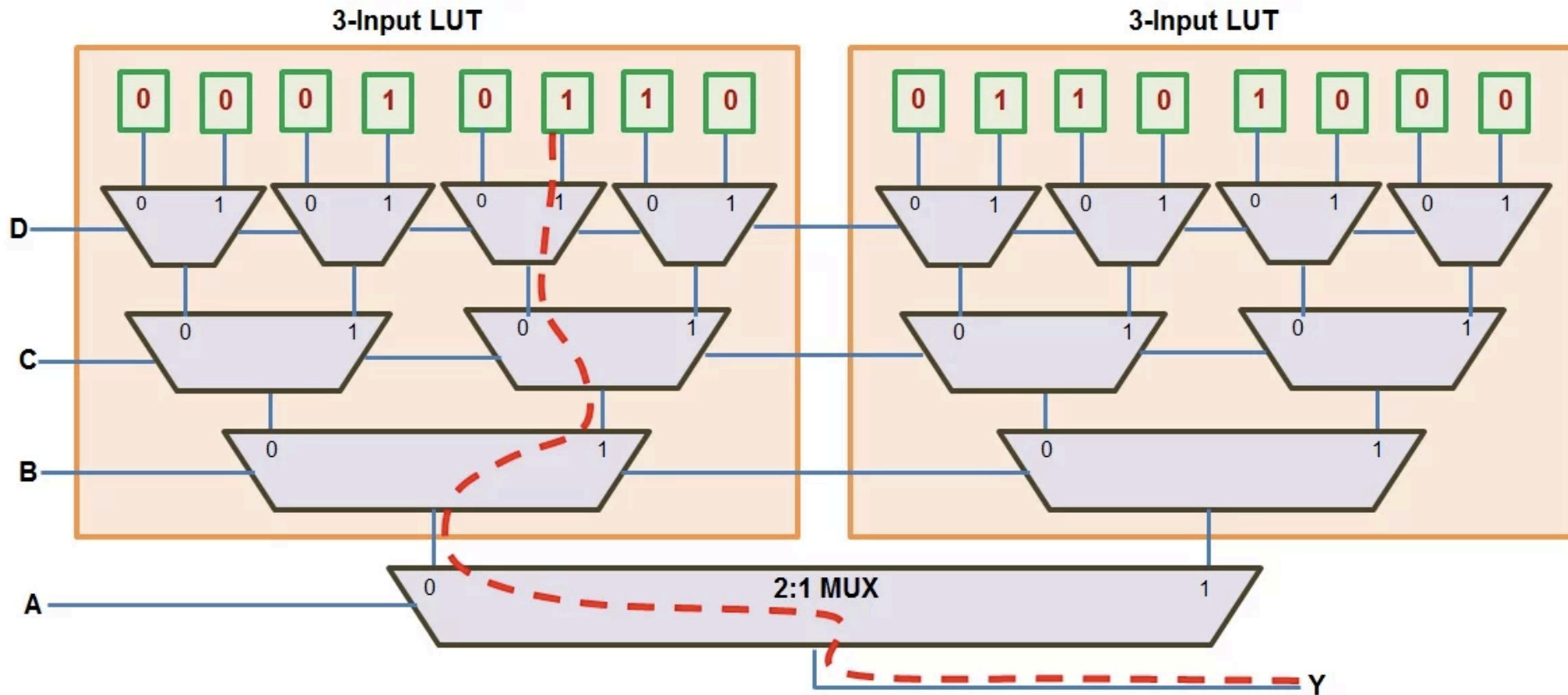
ASIC Design Flow



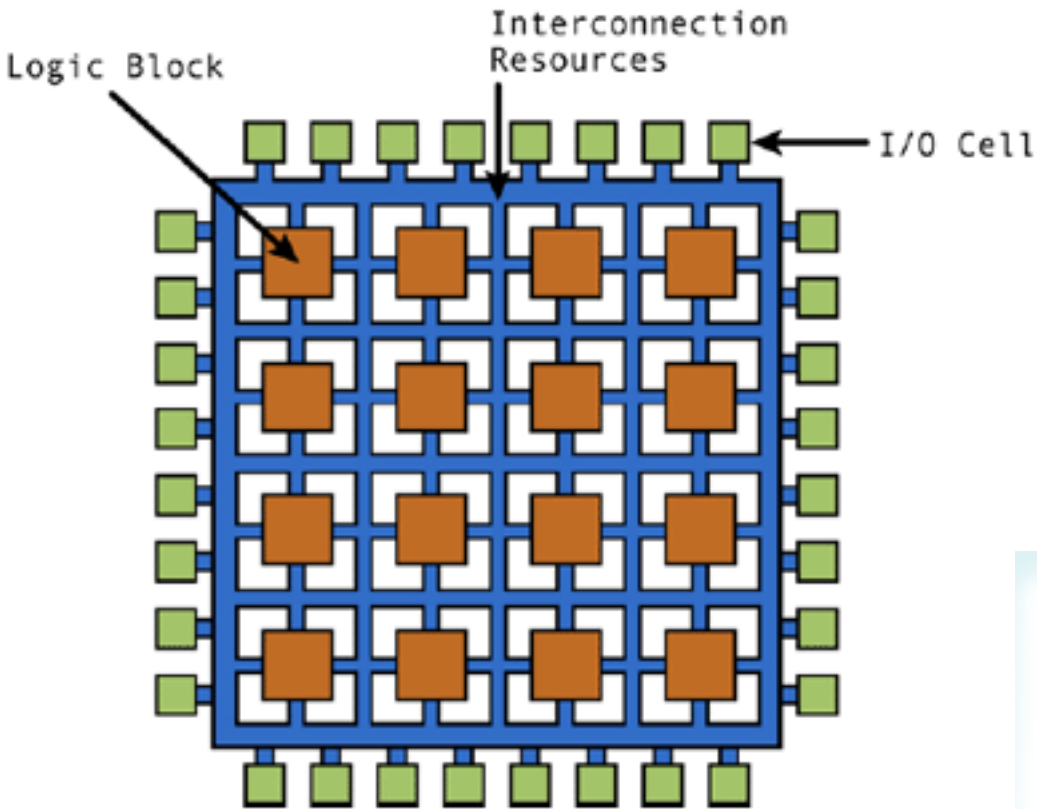
Programmable Hardware



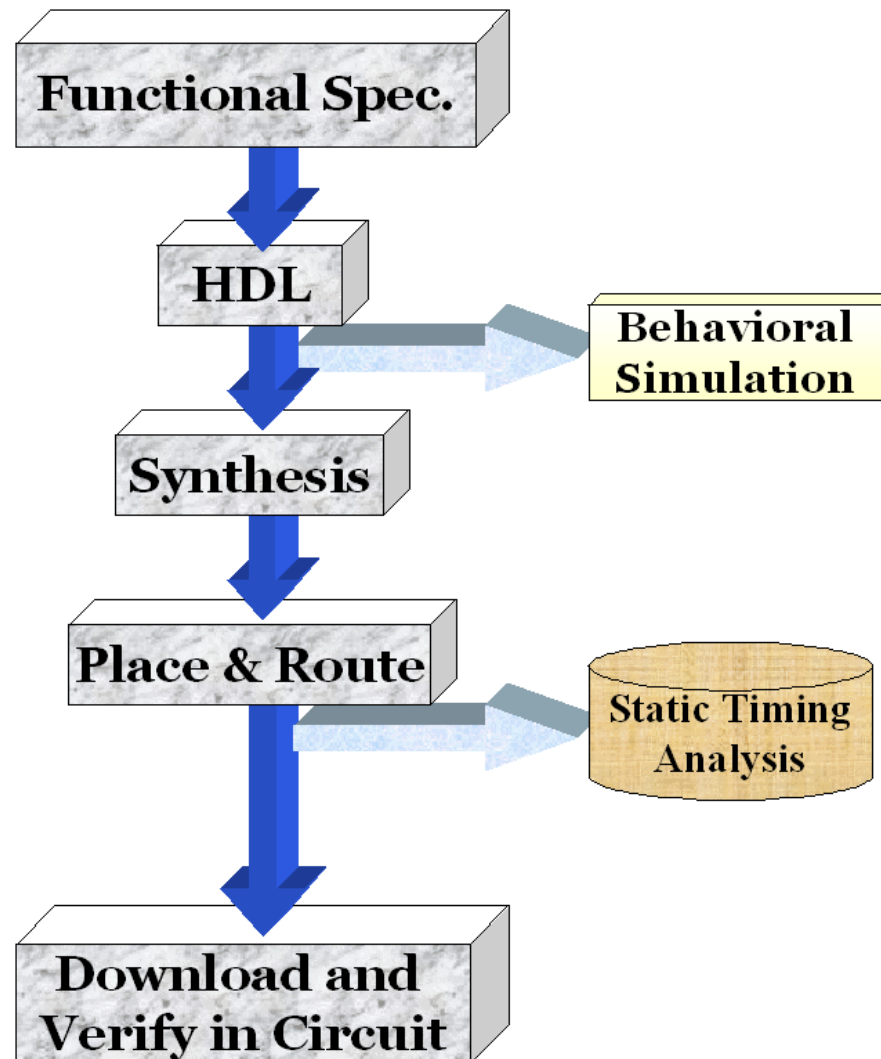
Programmable Hardware



FPGA – Field Programmable Gate Arrays



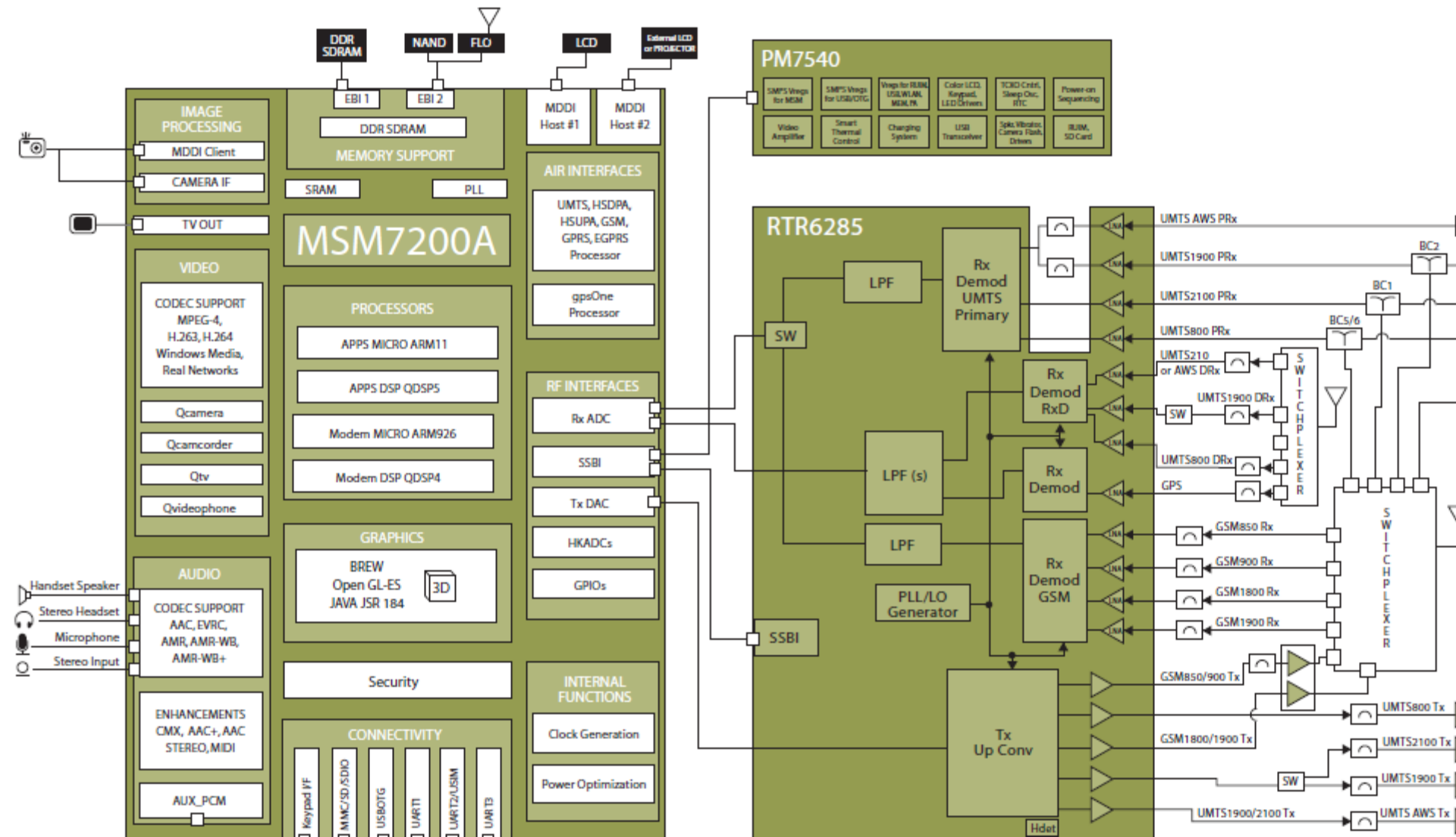
FPGA Design Flow



Which way to go?

ASIC	FPGA
High performance	Off-the-shelf
Low power	Low development cost
Low cost in high volumes	Short time to market
	Reprogrammable

System-on-a-Chip (SoC)



Zynq: PS + PL

