

Programmable Logic Applications and Architectures

Exercise 1: Would you use hardware or software to implement: A new calculator? A digital watch? A controller for a kitchen appliance? An Ethernet interface? For Cryptocurrency “mining”? For an aircraft’s automated landing system?

Exercise 2: What improvement in number of transistors per unit area would be achieved by reducing the transistor dimensions from 7 nm to 5 nm? Approximately how many 5x5 mm die fit on a 300 mm wafer? How many 200x200 nm gates fit on the die?

Exercise 3: Would you use a PLD or ASIC for: A project that had to be completed within a month? That would be expected to sell 100 million units? Whose complete requirements aren't known? A state-of-the-art general-purpose CPU?