



GANDHI SCHOOL OF ENGINEERING, BHABANDHA, BERHAMPUR

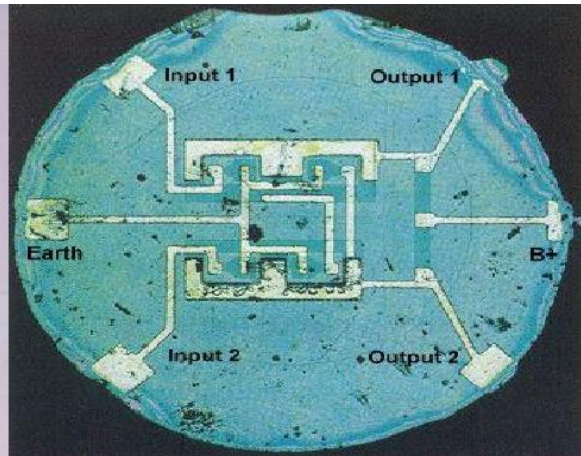
TEACHING LEARNING MATERIAL OF VLSI & EMBEDDED SYSTEM

PREPARED BY: ER. PRETESSHA MAHAPATRO & ER. S.K BISOYEE

CHAPTER-1



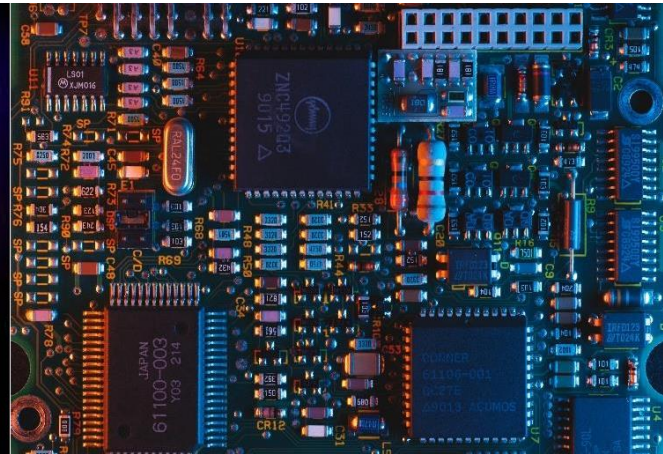
SINGLE MONOLITHIC CHIP (IC)



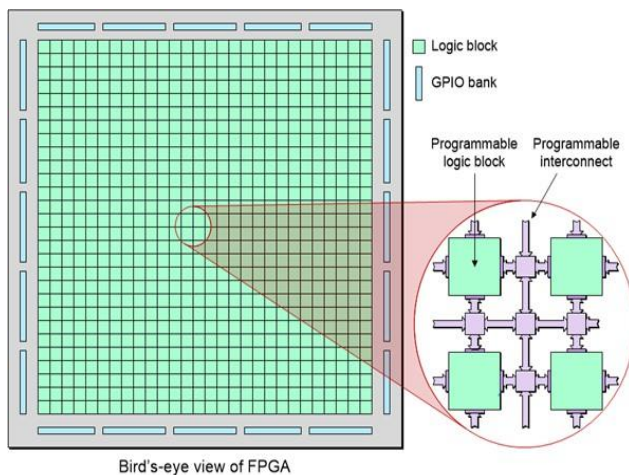
FIRST MONOLITHIC CHIP



IC



PHYSICAL DESIGN OF VLSI

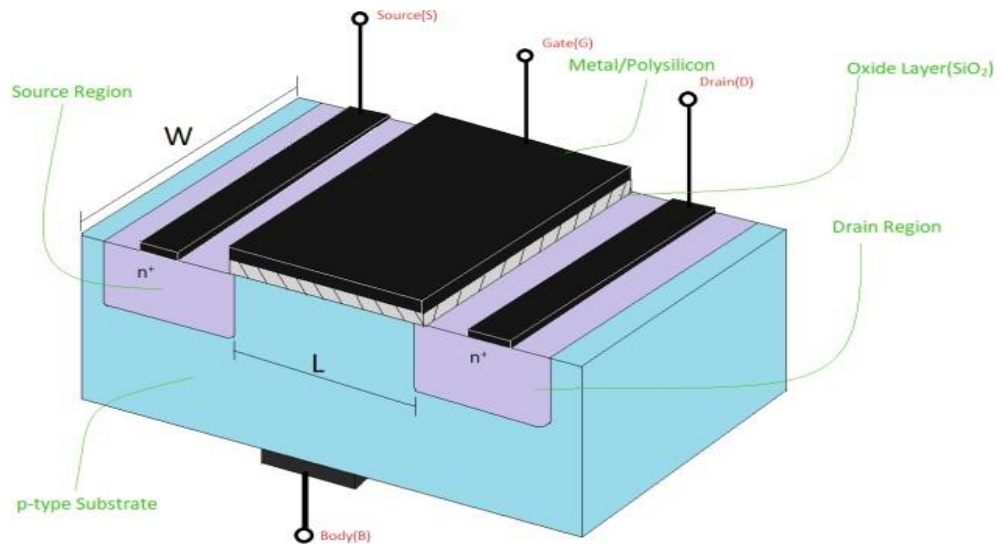


**CONFIGURABLE LOGIC BLOCKS OF FPGA
SPARTAN-7**

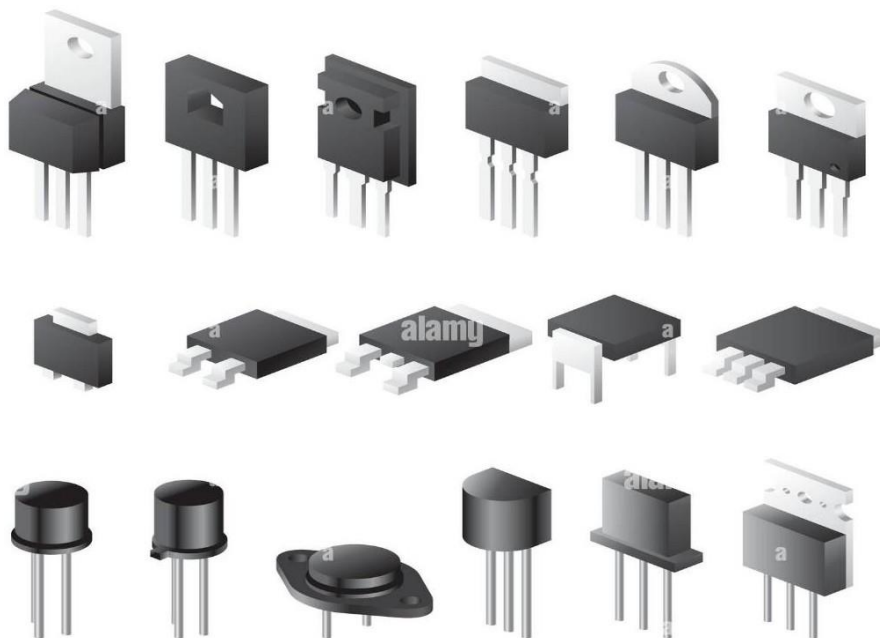


FPGA

CHAPTER-2

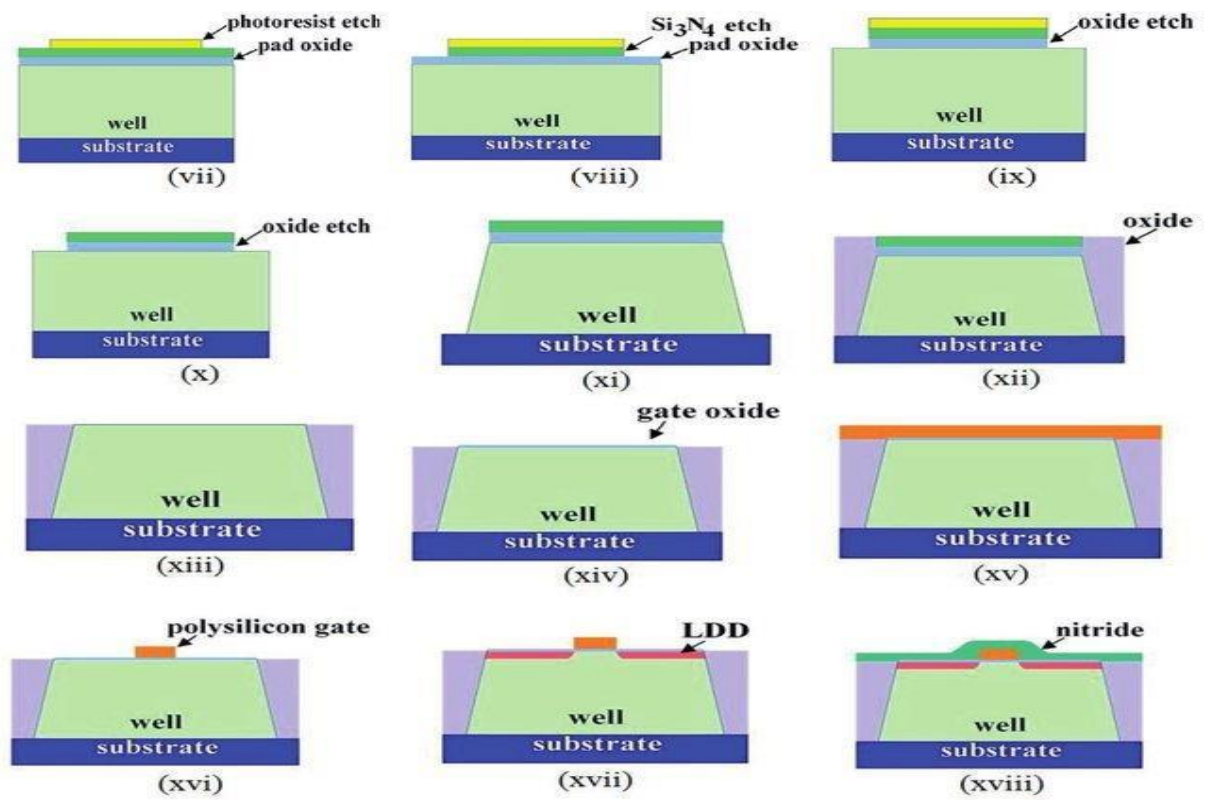


MOS TRANSISTOR STRUCTURE



DIFFERENT TYPES OF MOSFET

CHAPTER-3



FABRICATION PROCESS

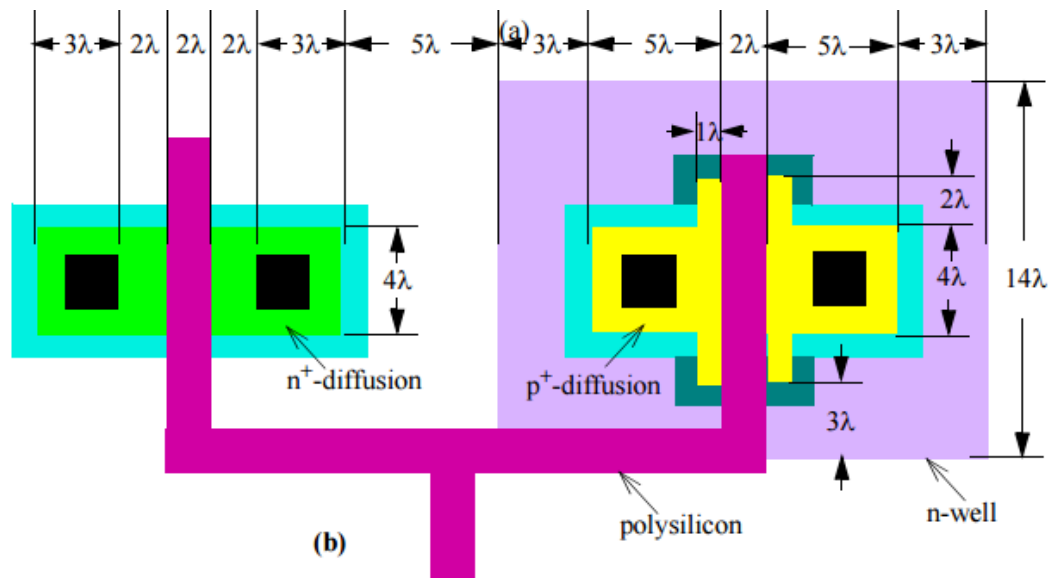
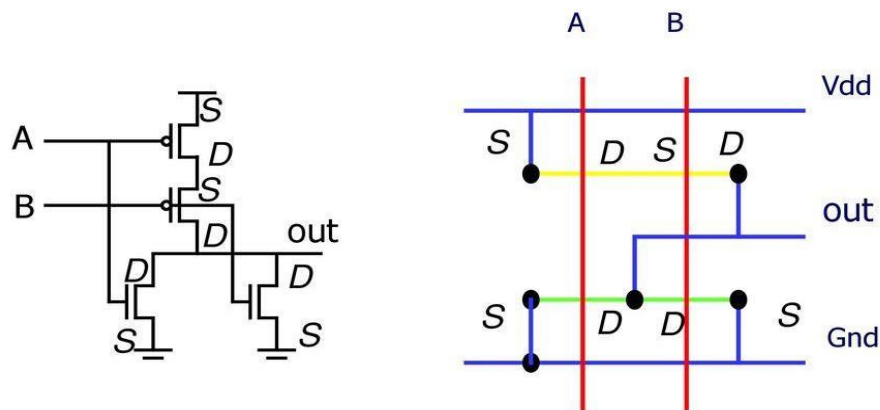


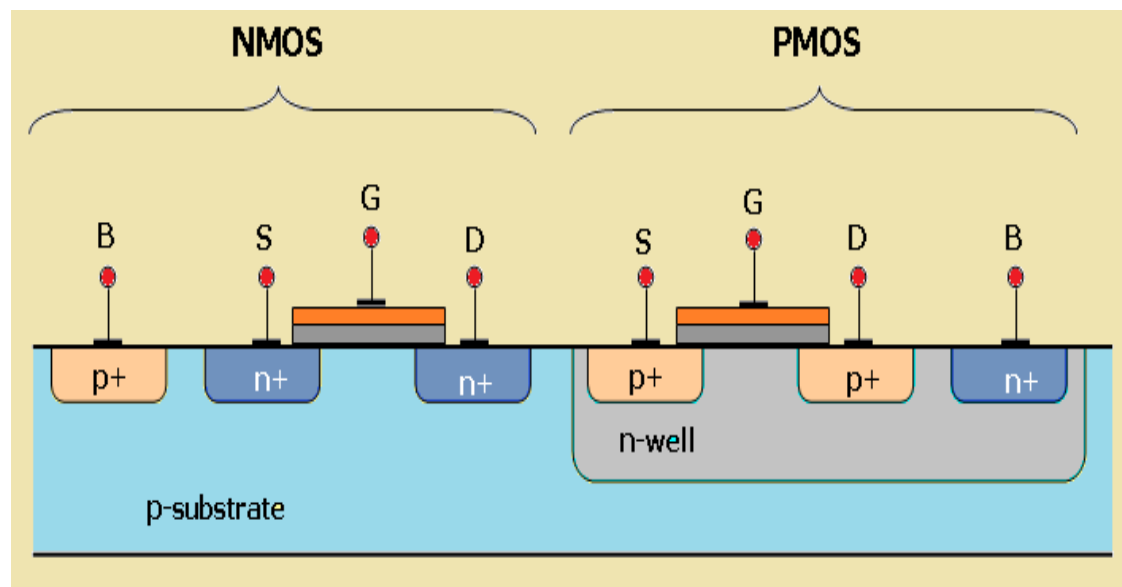
Figure 1 (a)Electrical model of a cascade connection of twoCMOS inverters. (b)A partial sketch of a CMOS inverter layout (metal layer not shown).

LAYOUT DESIGN

Stick Diagram for CMOS NOR



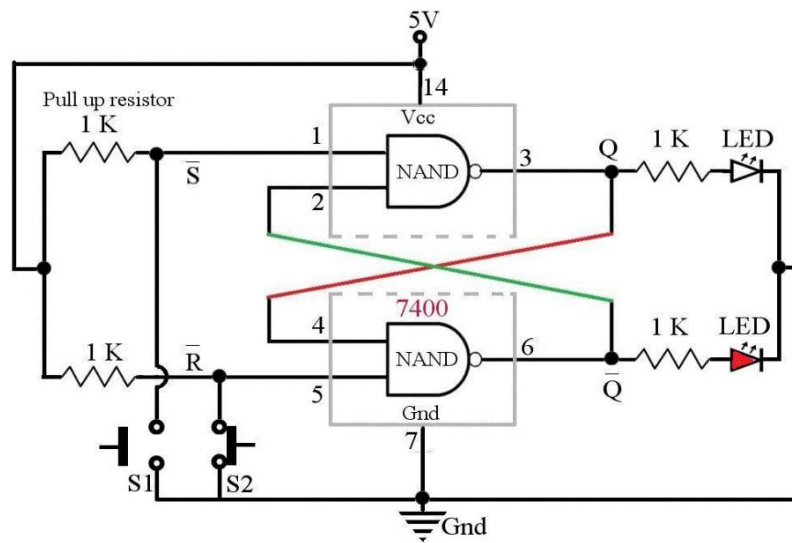
STICK DIAGRAM



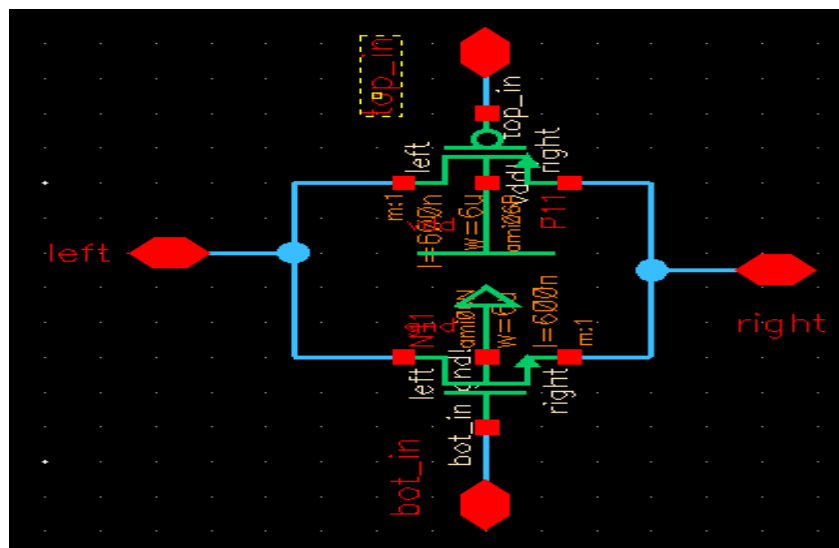
CMOS

CHAPTER-4

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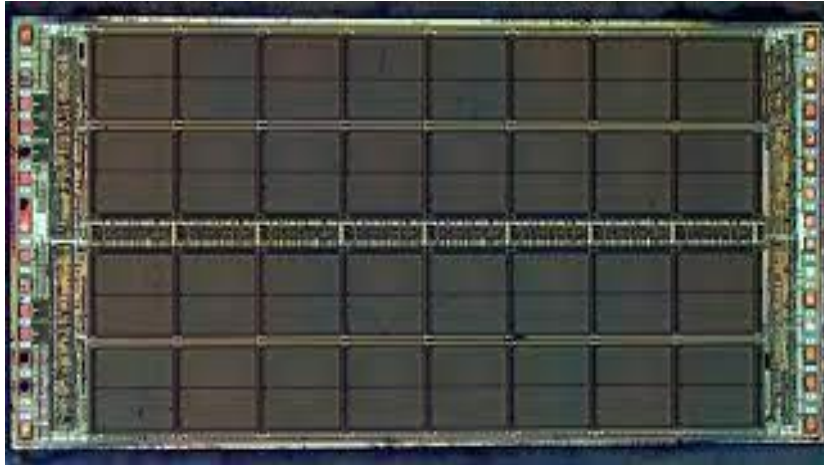
SR LATCH USING NAND GATE



TRANSMISSION GATE



DRAM



TYPICAL COFIGURATION OF DRAM CHIP

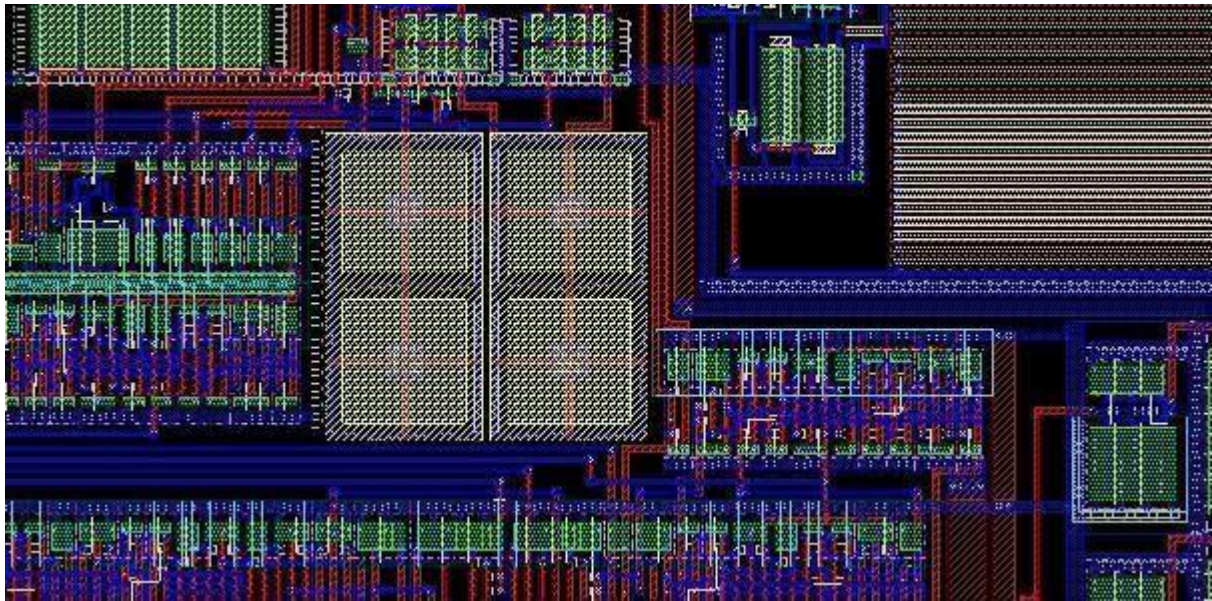


SRAM



FLASH MEMORY

CHAPTER-5



EDA TOOL SIMULATION

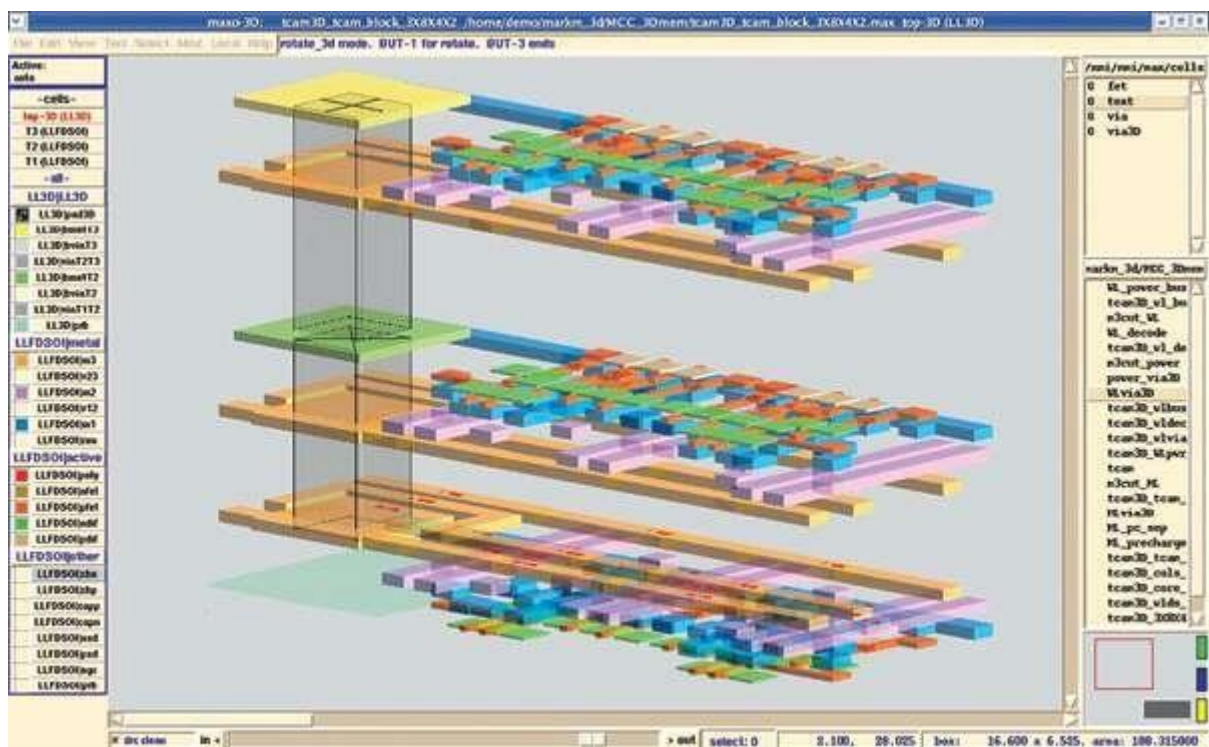
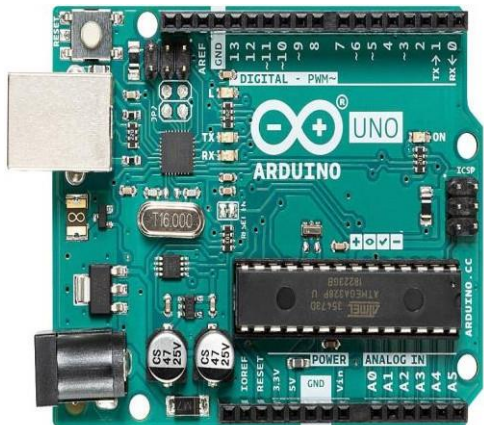


Figure 5 The Max-3D tool incorporates features for 3-D-design methods, so you can organize and manage design data for every wafer level in a stacked design.

3-D STRUCTURE IC DESIGN



RASBERRY PI



ARDUINO UNO

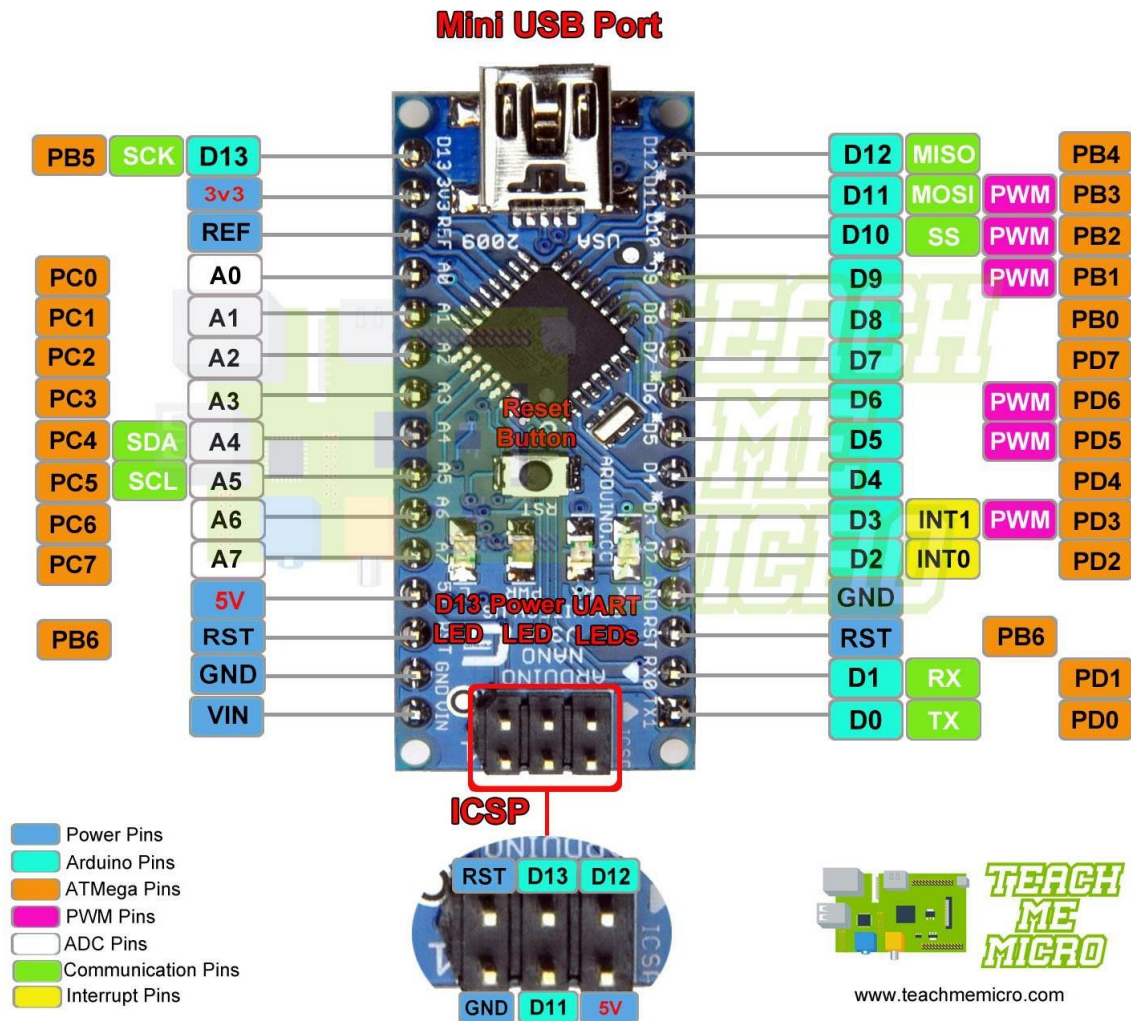


ARDUINO ROBOT

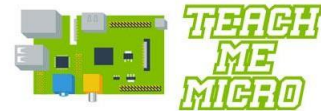


ARDUINO MICRO

ARDUINO NANO PINOUT

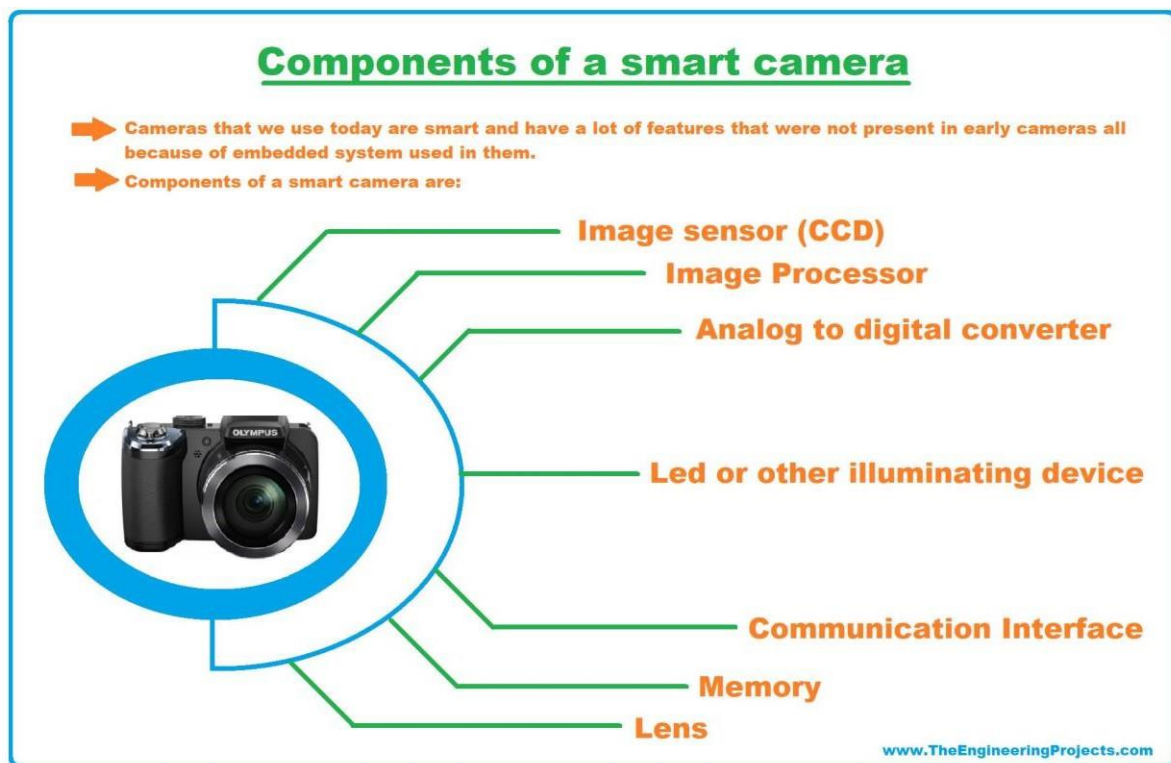


ARDUINO NANO

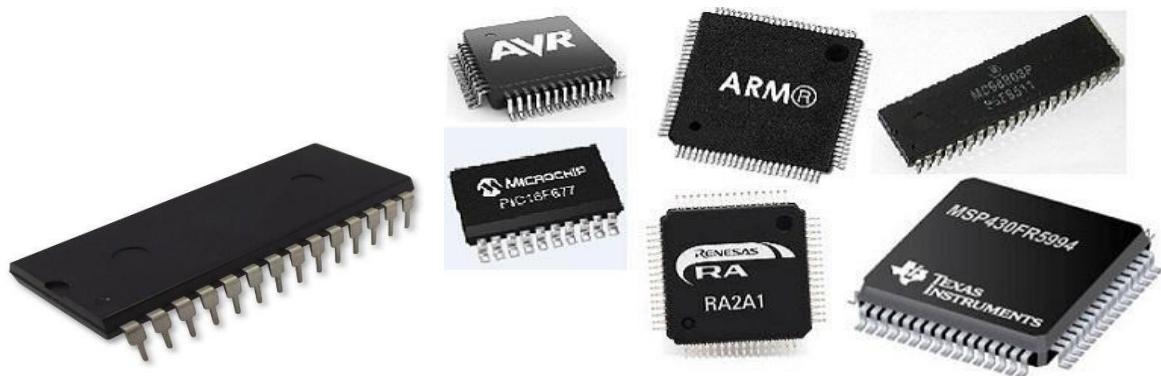


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CHAPTER-6



DIGITAL CAMERA



8-BIT MICROCONTROLLER

DIFFERENT TYPE OF
MICROCONTROLLERS