

1. MOSFETs are portable, use less power, draw no current, compatible with silicon processing technology. They provide very good isolation between gate and the other two terminals as compared to BJTs. MOSFETs have very low switching power loss and high speed. MOSFETs also reduce heat dissipation, power dissipation and leakage currents are minimized in the circuits.

FINFET technology is suitable for IC fabrication as it has higher scalability for the given footprint area than MOSFETs. Leakage current and leakage voltage are responsible for leakage current; their power consumption is less than that of MOSFETs. It is easy to fabricate multi gate devices using FINFET technology. FINFETs produce an excellent sub threshold slope and higher voltage gain than planar MOSFETs.

The first kind of transistor to be developed and used in the early days of electronics were BJTs . It features low input impedance and high power consumption. Subsequently, or MOSFETs were introduced to replace BJTs. Its low power consumption and high input impedance are its key characteristics. It is a voltage-controlled device, meaning that providing voltage will turn it on and off. Their ability to accelerate and create more rapid brief channel impact. In order to get around this, FINFET is presented.

2. Difference between RAM and ROM. Evolution of memories

RAM (Random Access Memory) and ROM (Read Only Memory) are two types of computer memory that are important and have different features. RAM is high-speed, volatile memory used to store and process temporary data. ROM, on the other hand, is non-volatile memory used to store lasting data like firmware.

RAM is much faster than other types of memory, such as hard disk drives, making it ideal for storing and accessing data that needs to be accessed quickly. RAM is volatile memory, which means that it loses its contents when power is turned off. This property allows RAM to be easily reprogrammed and reused. RAM can be easily upgraded and expanded, allowing for more memory to be added as needed. RAM is used to store data that the computer is currently using.

ROM is non-volatile memory, which means that it retains its contents even when power is turned off. This property makes ROM ideal for storing permanent data, such as firmware and system software. ROM is stable and reliable, which makes it a good choice for critical systems and applications. ROM cannot be easily modified, which makes it less susceptible to malicious attacks, such as viruses and malware. ROM is used to store data that the computer needs to boot and operate.

3. List out the semi conductor products and its corresponding companies

Integrated Circuits (ICs): Texas Instruments, STMicroelectronics.

Microcontrollers: STMicroelectronics, NXP Semiconductors.

Microprocessors: Intel, AMD, Qualcomm, Apple

Power Semiconductors: STMicroelectronics, Infineon Technologies

Field-Programmable Gate Arrays (FPGAs): Intel, Xilinx

Power Management ICs: Texas Instruments, ON Semiconductor.

4. What are the latest laptop processors from AMD, intel and apple : frequency and node

Intel – Intel Core i9-12900K : frequency-3.2GHz-5.3GHz, node – 10nm

Apple – Apple M1 Max : frequency- 3.2-3.8GHz, node -5nm

AMD – AMD Ryzen 95900HX : frequency- 3.3-4.6GHz, node – 7nm

5. What are the latest mobile processors available from Qualcomm and mediate : frequency and node

Mediatek

a. Snapdragon 8 Gen 2

Frequency-3.2GHz; node-4nm

Snapdragon8 Gen 3

Frequency-3.1GHz; node-4nm

b. Qualcomm Dimensity 9300

Frequency- 3.25GHz ; node – 6nm

6. What are the different job roles available in vlsi field

VLSI Design Engineer

Physical Design Engineer

Verification Engineer

ASIC Design Engineer

Digital Design Engineer

Layout Engineer

FPGA Design Engineer
IC Design Engineer
DFT (Design for Test) Engineer