RESEARCH WORK-2

1. List out microcontroller supplier companies?

1. Atmel (Microchip)
2. NXP Semiconductors
3. Texas Instruments
4. STMicroelectronics
5. Renesas Electronics
6. Infineon Technologies
7. Silicon Labs

2. List out microprocessor supplier companies?

1. Intel Corporation
2. Advanced Micro Devices (AMD)
3. Qualcomm
4. Broadcom Inc.
5. Texas Instruments
6. NXP Semiconductors
7. STMicroelectronics
8. Renesas Electronics Corporation
9. Arm Limited
10. Marvell Technology Group Ltd.

3. What is System On Chip (SOC)? Give any 2 examples of SOC?

System on Chip (SOC) is an integrated circuit that combines all the components of a computer or other electronic system onto a single chip. It includes the microprocessor, memory, peripherals and other components.

Examples of SOC include:

1. Qualcomm Snapdragon: A popular SOC for mobile devices and IoT applications.
2. Intel Atom: A SOC used in many low-power and compact embedded systems.
3. Qualcomm Snapdragon
4. Apple A-series
5. NVIDIA Tegra
6. Samsung Exynos
7. Huawei HiSilicon
8. Broadcom
9. MediaTek
10. Texas Instruments OMAP
11. Intel Atom
12. Marvell ARMADA

4. what are the differences between opcode and hex code?.

Opcode and hex code are both representations of machine language instructions in a computer program, but they are different in their representation and purpose.

Opcode (operation code) refers to the binary instruction that the CPU recognizes and executes to perform a specific operation. It is the actual binary value representing the instruction.

Hex code, on the other hand, is the hexadecimal representation of the binary data in a machine code or opcode. It is used as a convenient way for human readability and representation of binary data, as hexadecimal is easier for humans to understand than binary.

In conclusion, opcode represents the actual instruction executed by the CPU, while hex code is a representation of binary data in a more human-readable format.

5. What are the advantages of digital system over analog system?

1. Greater precision and accuracy: Digital systems use binary code to represent data, which can achieve greater precision and accuracy than analog systems.
2. Better noise immunity: Digital systems are less susceptible to noise and interference compared to analog systems.
3. Ease of data processing: Digital systems can process and manipulate data more easily than analog systems, making it possible to perform complex operations.
4. Ease of storage: Digital data can be easily stored and retrieved, whereas analog data must be continuously transmitted or recorded.
5. Ease of communication: Digital signals can be easily transmitted over long distances without degradation, whereas analog signals are prone to noise and signal loss.
6. Cost-effectiveness: Digital systems are generally less expensive to manufacture and maintain than analog systems.
7. Precision: Digital systems are capable of providing highly precise output. This is due to the digital signals that are either on or off, allowing for a clear and precise signal representation.
8. Storage: Digital systems allow for easy storage and retrieval of data. The binary nature of digital signals makes it easy to store, process, and retrieve data.
9. Interfacing: Digital systems can be easily interfaced with other digital systems, resulting in high reliability and low error rates.
10. Repeatability: Digital systems are highly repeatable and consistent, making them ideal for applications that require consistent performance.
11. Easy to Test: Digital systems are easy to test and diagnose, making them more reliable and cost-effective.

12. Immunity to Noise: Digital systems are highly immune to noise, making them ideal for applications in harsh or noisy environments.
13. Versatility: Digital systems can be programmed to perform a wide range of functions, making them more versatile and adaptable than analog systems.