List of Some Important Interview Questions and Answer.

👉 What is the Significance of "Watchdog Timer" in Embedded Systems?

A watchdog timer (WDT) is a hardware timer that automatically generates a system reset if the main program neglects to periodically resets it. It is often used to automatically reset an embedded device that hangs because of a software or hardware fault.

👉 Explain Read Modify Write technique?

read–modify–write is a class of atomic operations that both read a memory location and write a new value into it simultaneously, either with a completely new value or some function of the previous value.

👉 Explain LCALL ?

(Long CALL) is a 3-byte assembly instruction that is used to call a subroutine (Subroutines are used to perform operations or tasks that need to be performed frequently).

👉 What is the Advantage of "ACALL" over "LCALL"?

ACALL allows you to jump to a subroutine within the same 2K page. LCALL allows you to jump to a subroutine anywhere in the 64K code space. The advantage of ACALL over LCALL is that it is a 2-byte instruction while LCALL is a 3-byte instruction.

👉 What is Virtual Memory?

In computing, virtual memory is a memory management technique that provides abstraction of the storage resources that are actually available on a given machine which creates the illusion to users of a very large (main) memory.

👉 What is "Interrupt Latency" & how we can reduce it?

Is the time elapsed from the interrupt occurence to interrupt service routine execution (the source of the interrupt is serviced). We can reduce it by:

Keep the ISRs short and simple

don't disable interrupts

avoid instructions that increase context switching when the main program is running.

avoid improper use of OS APIs calls in ISR.

properly prioritize interrupts relative to threads.

👉 What are the different activities which a StartUp Code performs?

1. Disable all interrupts.

2. Copy any initialized data from ROM to RAM.

3. Zero the uninitialized data area.

4. Allocate space for and initialize the stack.

5. Initialize the processor's stack pointer.

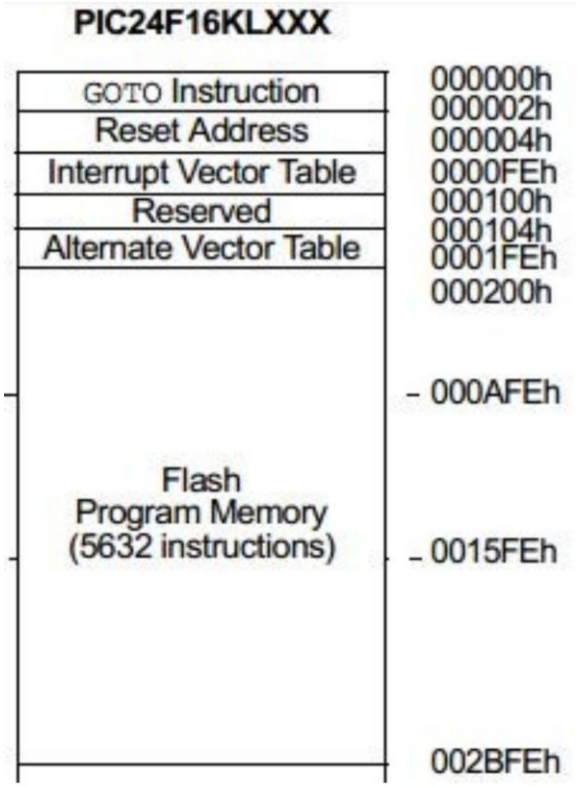
6. Create and initialize the heap.

7. Execute the constructors and initializers for all global variables (C++ only).

8. Enable interrupts.

9. Call main.

👉 **Explain Boot process of a Microcontroller**



The microcontroller boot process starts by simply applying power to the system. Once the voltage rails stabilize, the microcontroller looks to the reset vector for the location in flash where the start-up instruction can be found. take a look at the following table for example.

👉 What is the function of DMA Controller in Embedded Systems?

Direct memory access (DMA) is a method that allows an input/output (I/O) device to send or receive data directly to or from the main memory, bypassing the CPU to speed up memory operations.

The process is managed by a chip known as a DMA controller (DMAC).

👉 How is a program executed "Bit by bit" or "Byte by Byte?

(I am not sure of the answer) Byte by byte or as the word length of the processor is. Because the processor is executing (instructions) and this can't be a bit size.

👉 What is lst File?

A file with an . lst extension is most likely a text file that contains a list of data.

👉 Explain DB ? (I don't know the answer so please if you know , write it down in the comments :))

👉 What is EQU? (I don't know the answer so please if you know , write it down in the comments :))

👉 What is the function of Simple Thread Pool in Embedded Systems? (I don't know the answer so please if you know , write it down in the comments :))

👉 What are the different types of customizations that are used with "Volatile" Keyword?

A variable should be declared volatile whenever its value could change unexpectedly. In practice, only three types of variables could change:

1. Memory-mapped peripheral registers

2. Global variables modified by an interrupt service routine

3. Global variables accessed by multiple tasks within a multi-threaded application