Interrupt

In microprocessors, interrupts are the signals that break the current execution of instructions and transfer the control to a special program called Interrupt Service Routine (ISR). Thus, after the execution of ISR, the control is returned back to the main program which was being halted.

Direct Memory Access (DMA):

The transfer of data between fast storage device such as Magnetic disk and memory is often limited by the speed of CPU. Removing the CPU from the path and letting the peripheral devices managing the memory bus directly by using DMA Controller.

→ DMA Controller interface provides I/O transfer of data directly to and from the memory and I/O device.

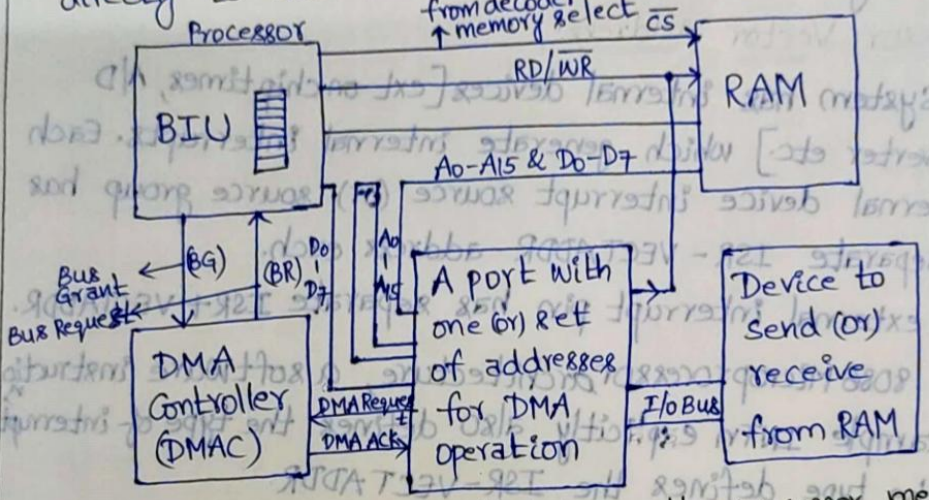

fig: Bus & Control signals between the processor, memory and DMA Controller

DMAC Operation:

→ DMAC (DMA Controller) is initialized by the DMA request from I/O devices. It is programmed for

(i) Read (or) Write
(ii) Mode (byte, burst (or) bulk)
(iii) Total no. of bytes to be transferred
(iv) Starting memory address.

→ DMA gives access to external peripheral device. Once it gets Bus grant signal from processor and at the end it

communicates to processor that the task is completed.

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