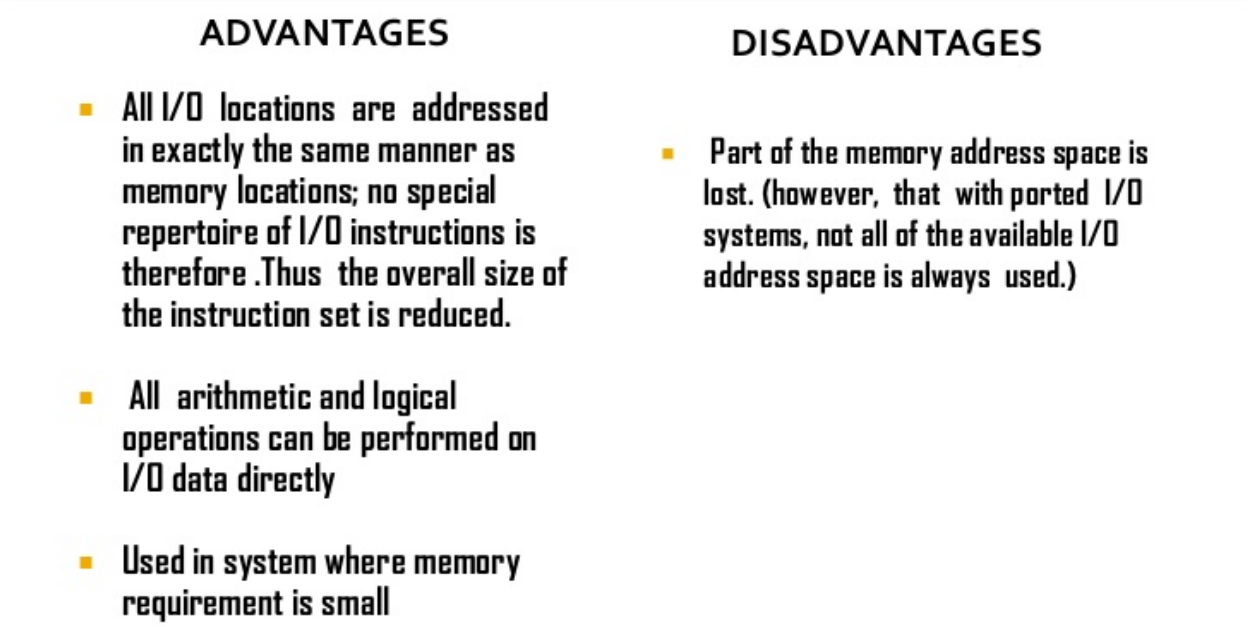
Memory mapped I/O

It is a way to exchange data and instructions between a CPU and peripheral **devices** attached to it. **Memory mapped** IO is one where the processor and the IO **device** share the same **memory** location(**memory**),i.e.,the processor and IO **devices** are **mapped** using the **memory** address.

Memory-mapped I/O uses the same address space to address both memory and I/O devices. The memory and registers of the I/O devices are mapped to (associated with) address values. So when an address is accessed by the CPU, it may refer to a portion of physical RAM, or it can instead refer to memory of the I/O device. Thus, the CPU instructions used to access the memory can also be used for accessing devices. Each I/O device monitors the CPU's address bus and responds to any CPU access of an address assigned to that device, connecting the data bus to the desired device's hardware register. To accommodate the I/O devices, areas of the addresses used by the CPU must be reserved for I/O and must not be available for normal physical memory.



DMA: The term DMA stands for direct memory access. The hardware device used for direct memory access is called the DMA controller. DMA controller is

a control unit, part of I/O device's interface circuit, which can transfer blocks of data between I/O devices and main memory with minimal intervention from the processor.