Basic Operational Concepts

- To execute program,Sequence of instructions
- A Typical Instruction ADD LOCA,R0
- Add the operand at memory location LOCA to the operand in a register R0 in the processor.
- Place the sum into register R0.
- The original contents of LOCA are preserved.
- The original contents of R0 is overwritten.
- Instruction is fetched from the memory into the processor – the operand at LOCA is fetched and added to the contents of R0 – the resulting sum is stored in register R0.

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- Add loca,r0
- Load loca,r1
- ADD R1,R0

You

Connection Between the Processor and the Memory

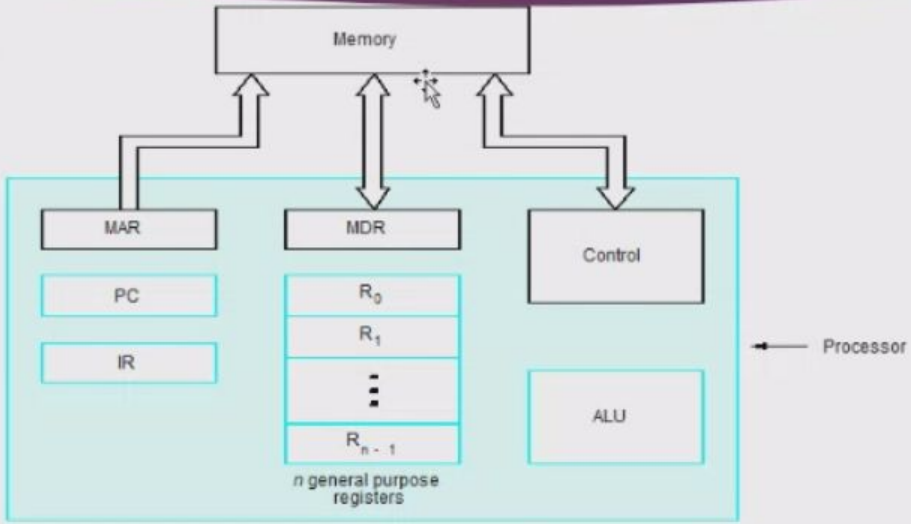

Figure 1.2. Connections between the processor and the memory.

You

Registers

- Instruction register (IR)
- Program counter (PC)
- General-purpose register ($R_0 - R_{n-1}$)
- Memory address register (MAR)
- Memory data register (MDR)

You

Interrupt

- Normal execution of programs may be preempted if some device requires urgent servicing.
- The normal execution of the current program must be interrupted – the device raises an *interrupt* signal.
- Interrupt-service routine
- Current system information backup and restore (PC, general-purpose registers, control information, specific information)

You