C Programming and Assembly

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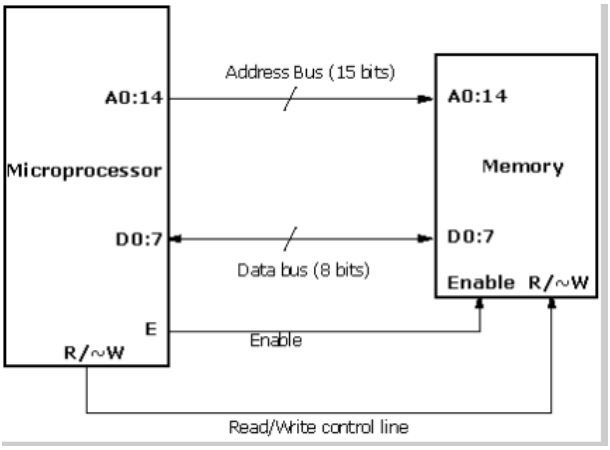
1 Basic overview of μP

The main purpose of μP is to execute a program store in a memory.



Address Bus: logically address 2^N addresses where N is the no. of address bits.
Control Signal: RD(Read), WR(Write)

1.1 Logical Memory Map

Consider $ADDR[0 : N-1]$, we have 2^N reference location and $DATA[0 : k-1]$, k bits of information in each locations. e,g $0, 1, \ldots 2^N - 1$ location and each with $k = 8$ bits of data

1.2 Instruction Cycle

1. Fetch(F)
2. Decode(D)
3. Execute(E)
Following cycle: $FI_1DI_1EI_1, FI_2DI_2EI_2 \ldots FI_mDI_mEI_m$, where I stands for Instructions
For performing FDE what do we need ?
For **FETCH:** fetching instructions from memory

- Need something to store(Instructions)
- Instructions Pointer: *always points to next instructions in the memory*

For **EXECUTE** we have following registers: