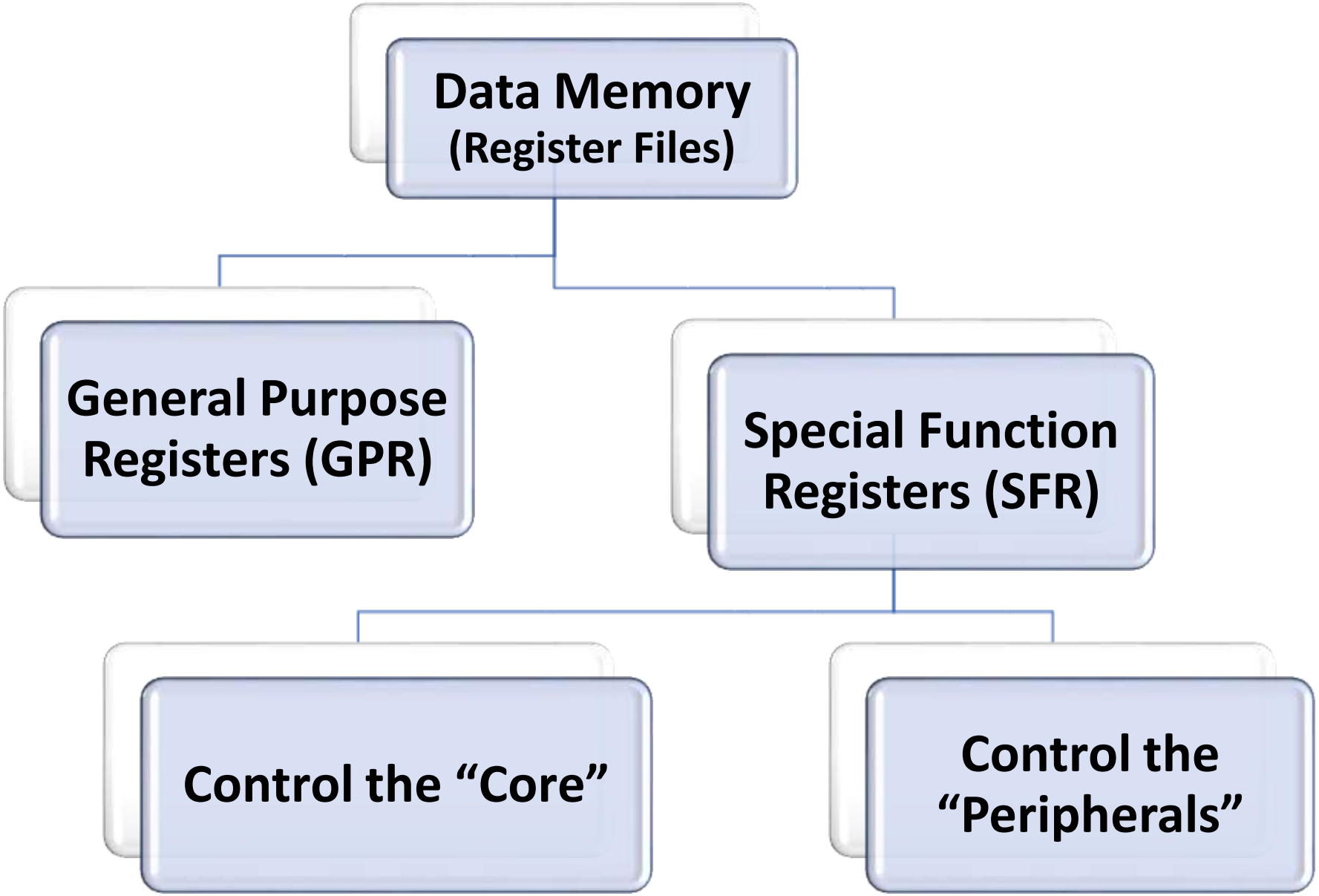
Memory Organization:

It has three memory blocks.

- Program memory
- Data memory
- Stack
- **Program memory :**
- PIC16C7X family has a ____13_____ program counter

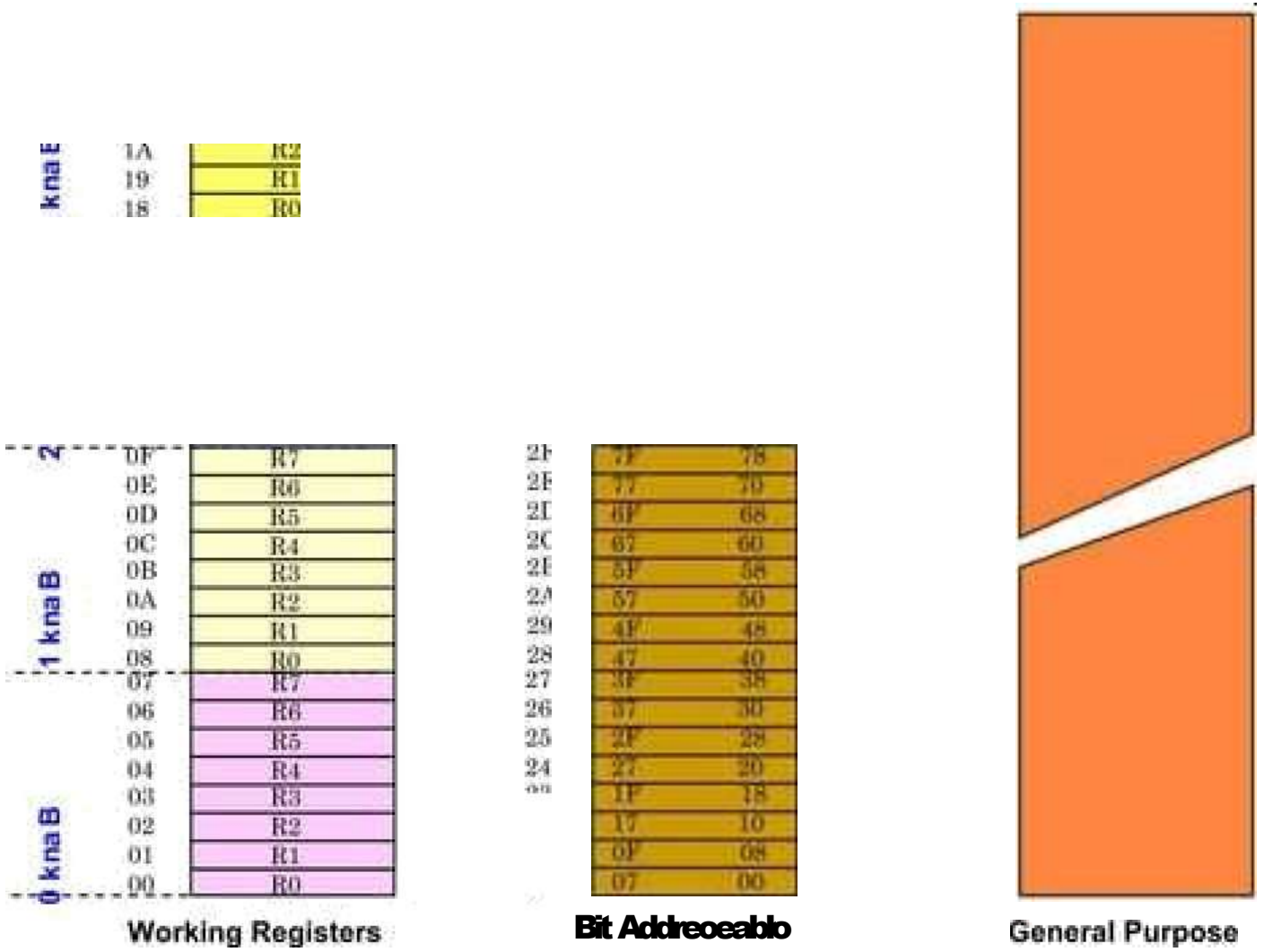
- Capable of addressing an **8K x 14** program memory


Data Memory
(Register Files)
General Purpose Registers (GPR)
Special Function Registers (SFR)
Control the "Core"
Control the "Peripherals"

INTERNAL MEMORY

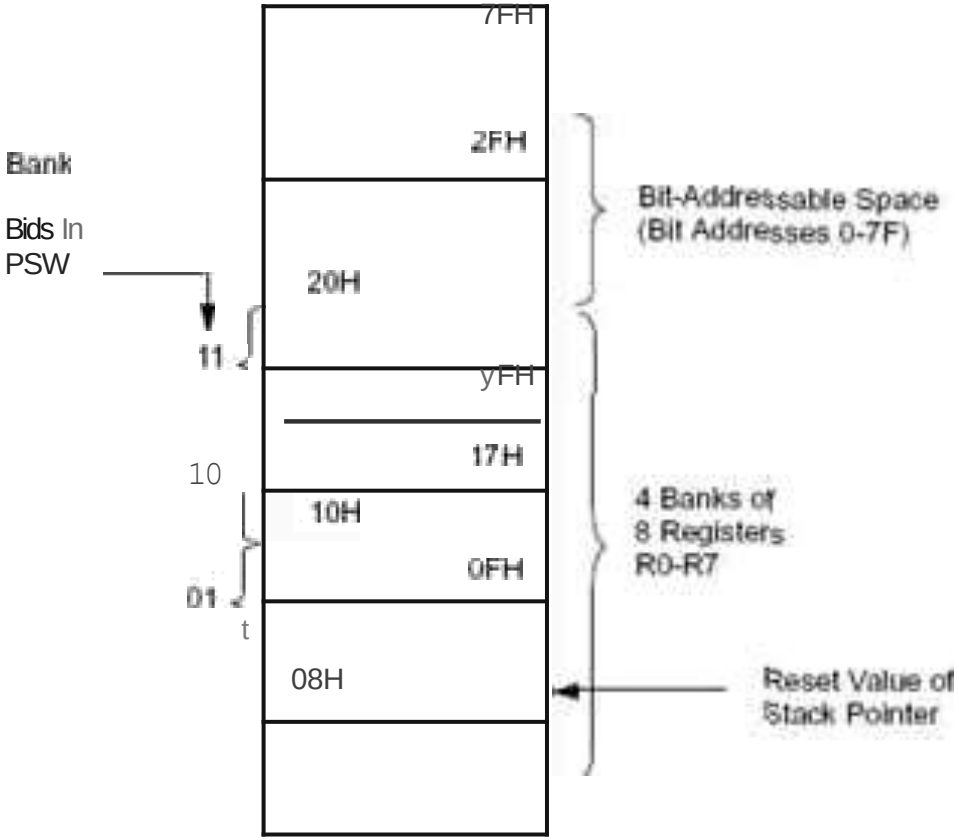
- A functioning computer mrist hnve memory for pi t›ui'i in ciimm bytes. commonly in ROM, and RAM memory fDl' VNl' gld b' ;ita that can be altered as the progra Ui fitll7S
- 5051 has internal RAM (US bytes) and ROM (4Kbytes)
- fi05l uses the same address but in different memories for code and data
- Internal circuitry access the correct memory based on the nature of the operation in progress
- Can add memory externally if needed

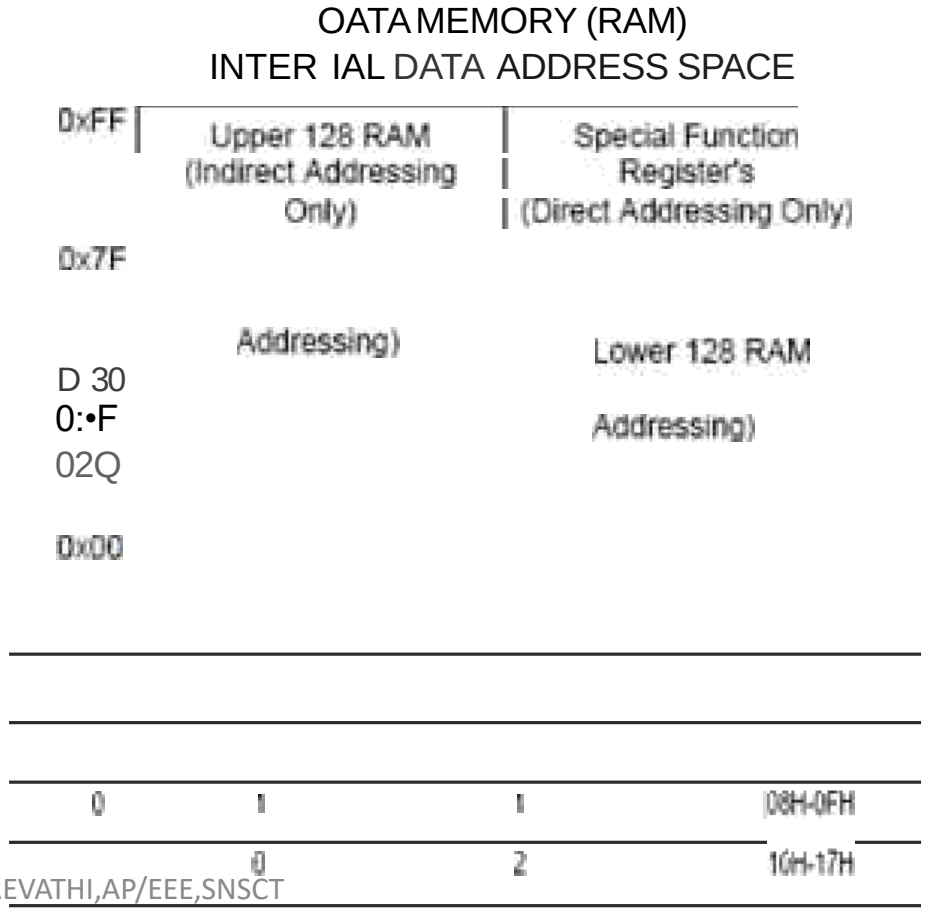
8051 Internal RAM Organisation



Progam Satus Word (PSW}

'Bank Select Bits, RSI, 4 Rg0 to select 1 of 4 register bank





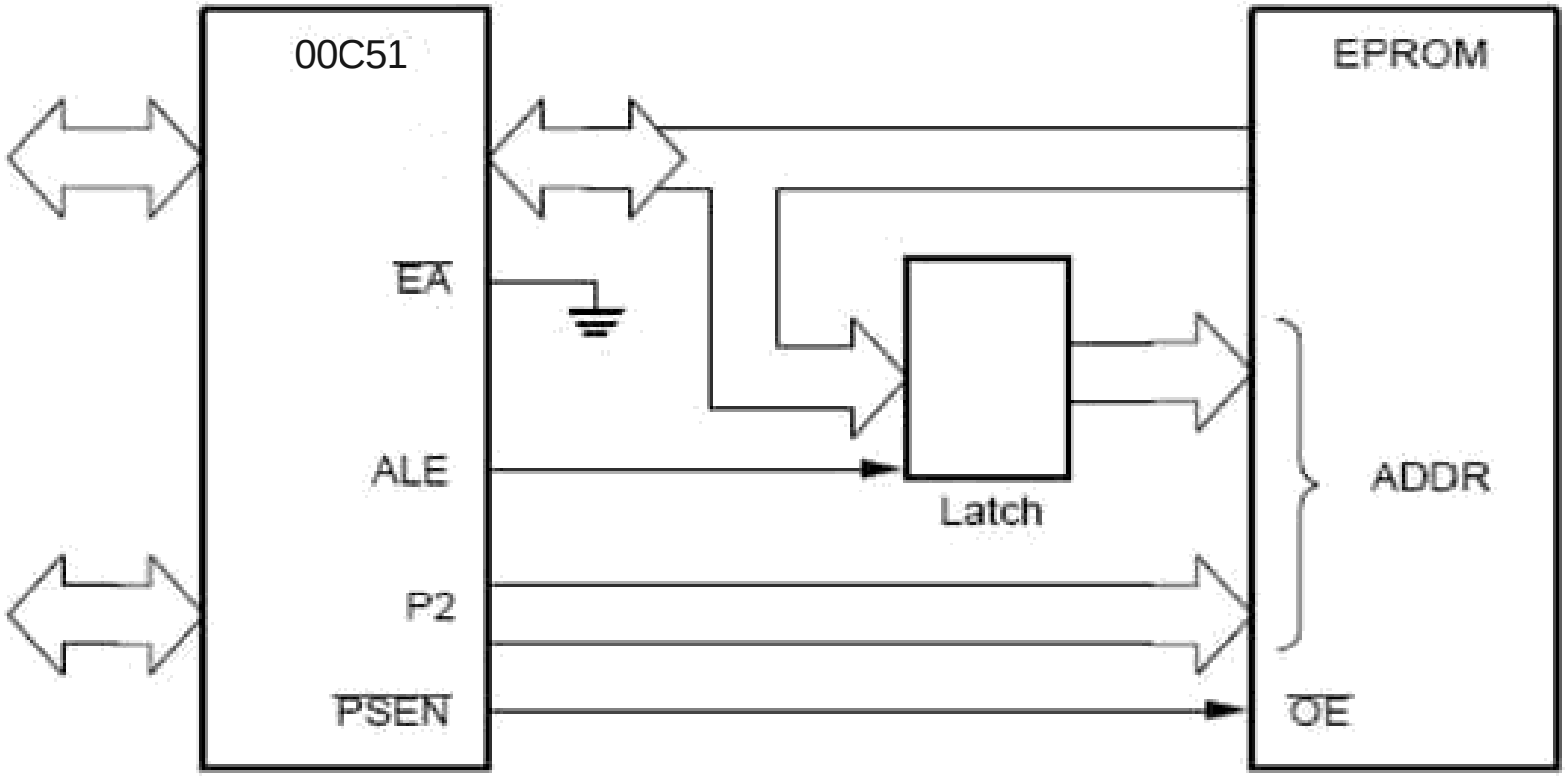
INTERNAL ROM

- Internal ROM occupies the code address space from OOOOH to OFFFH (Size - 1K 1› t‹•J

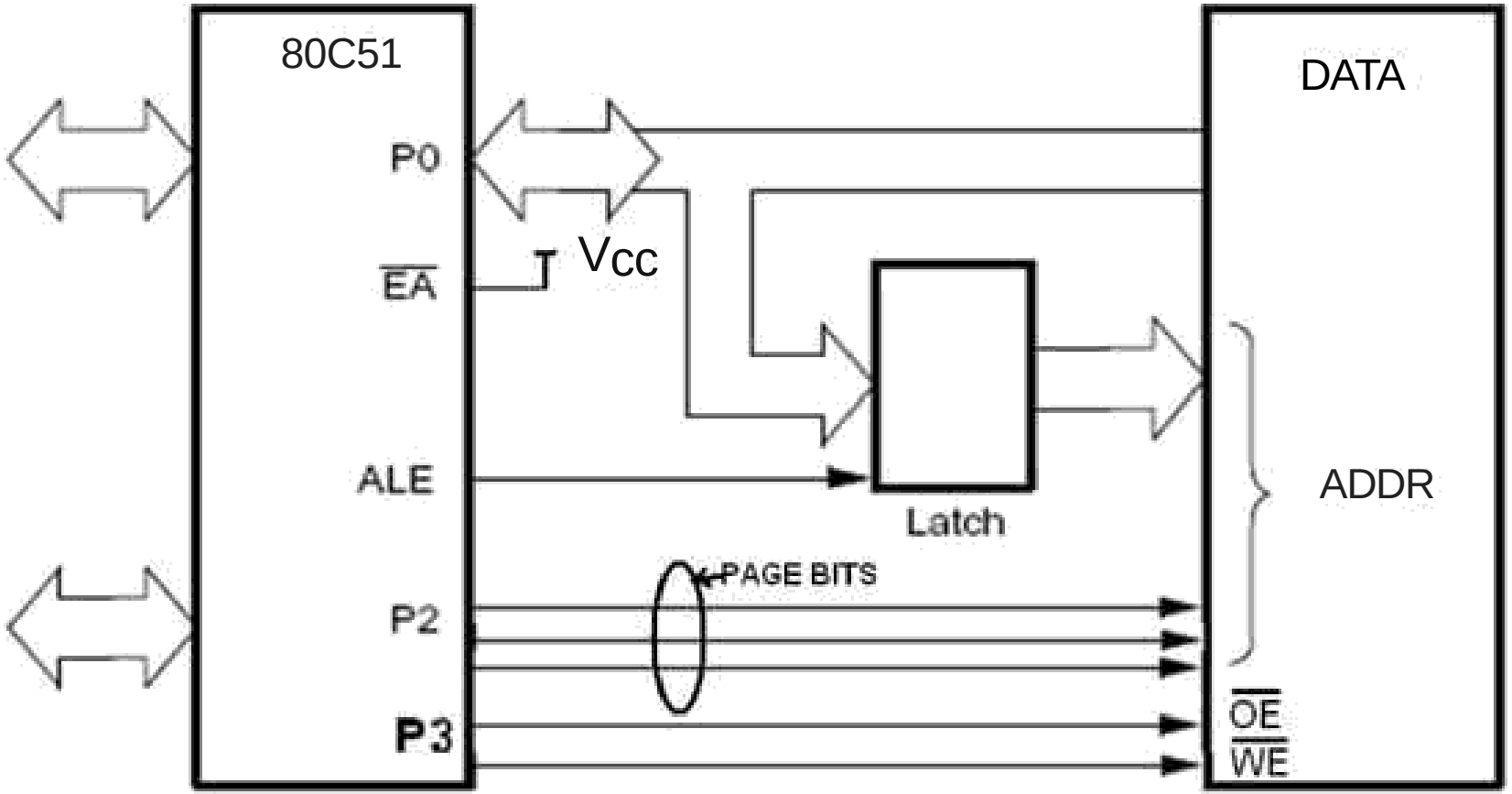
  Program addresses higher than OFFFH will automatically fetch code bytes from external program memory

  Code bytes can also be fetched exclusively from an external memory by connecting the external access pin *AEA)* to ground

INTERFACING WITH EXTERNAL PROGRAM MEMORY



NTERFACING WITH EXTERNAL DAG MEMORY



6 Read reference

- The 8051 Microcontroller and Embedded Systems - Using Assembly and C, Mazidi
- The 8051 Microcontroller — Hardware, Software and Interfacing, James W. Stewart
- Microprocessor and Micro controllers — Prof. C.R.Sharma, Premier publishing