



# **SNS COLLEGE OF TECHNOLOGY**

**Coimbatore-35**  
**An Autonomous Institution**

Accredited by NBA – AICTE and Accredited by NAAC – UGC with ‘A++’ Grade  
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai



## **DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

### **19ECB211 – MICROCONTROLLER PROGRAMMING & INTERFACING**

**II YEAR IV SEM**

**UNIT I – PIC MICROCONTROLLER : HISTORY , FEATURES & ARCHITECTURE**

**TOPIC 5 – File Registers and Access Bank in PIC**

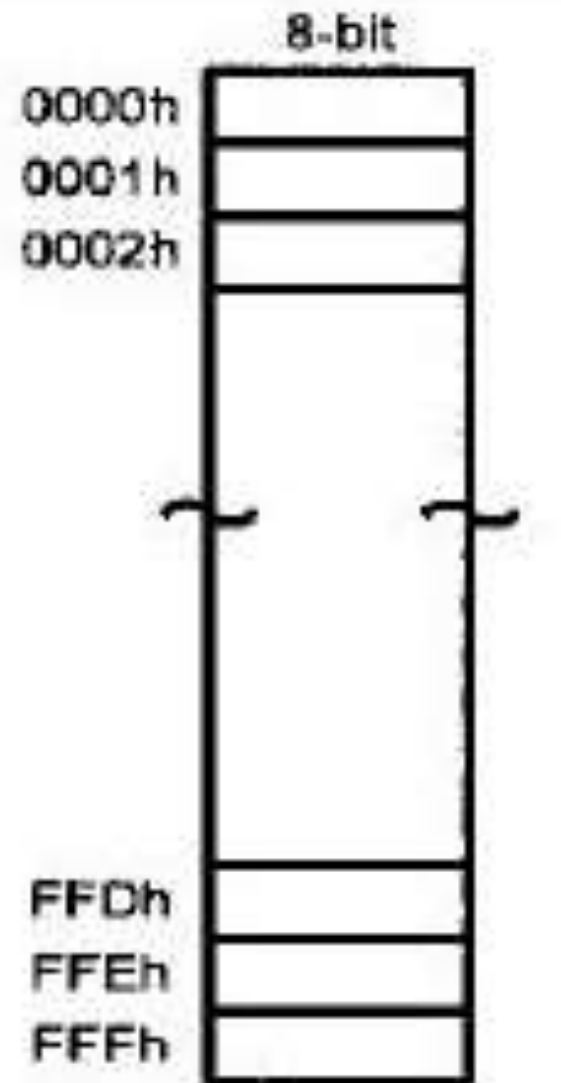


## File Register & Access Bank in PIC

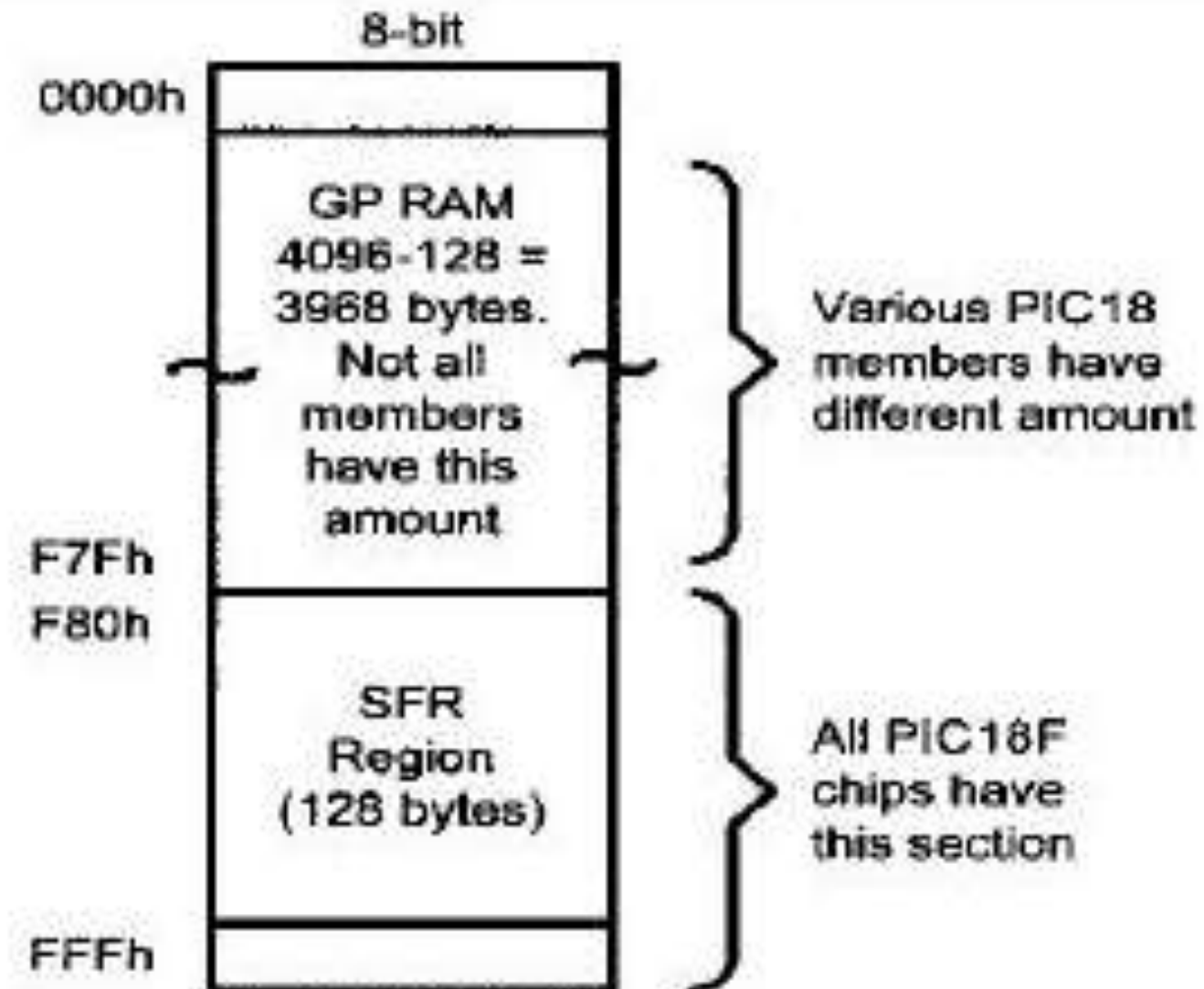
- The file register of the PIC18 family can have a maximum of 4096 (4K) bytes.
- With 4096 bytes, the file register has addresses of 000-FFFFH.
- The file register in the PIC18 is divided into 256 byte bank.
- Every PIC18 family member has at least one bank for the file register.
- This bank is called the access bank and is the default bank when we power up the PIC18 chip.



# File Register in PIC



a) Maximum space of file register (data RAM) in PIC18F (4096 byte)

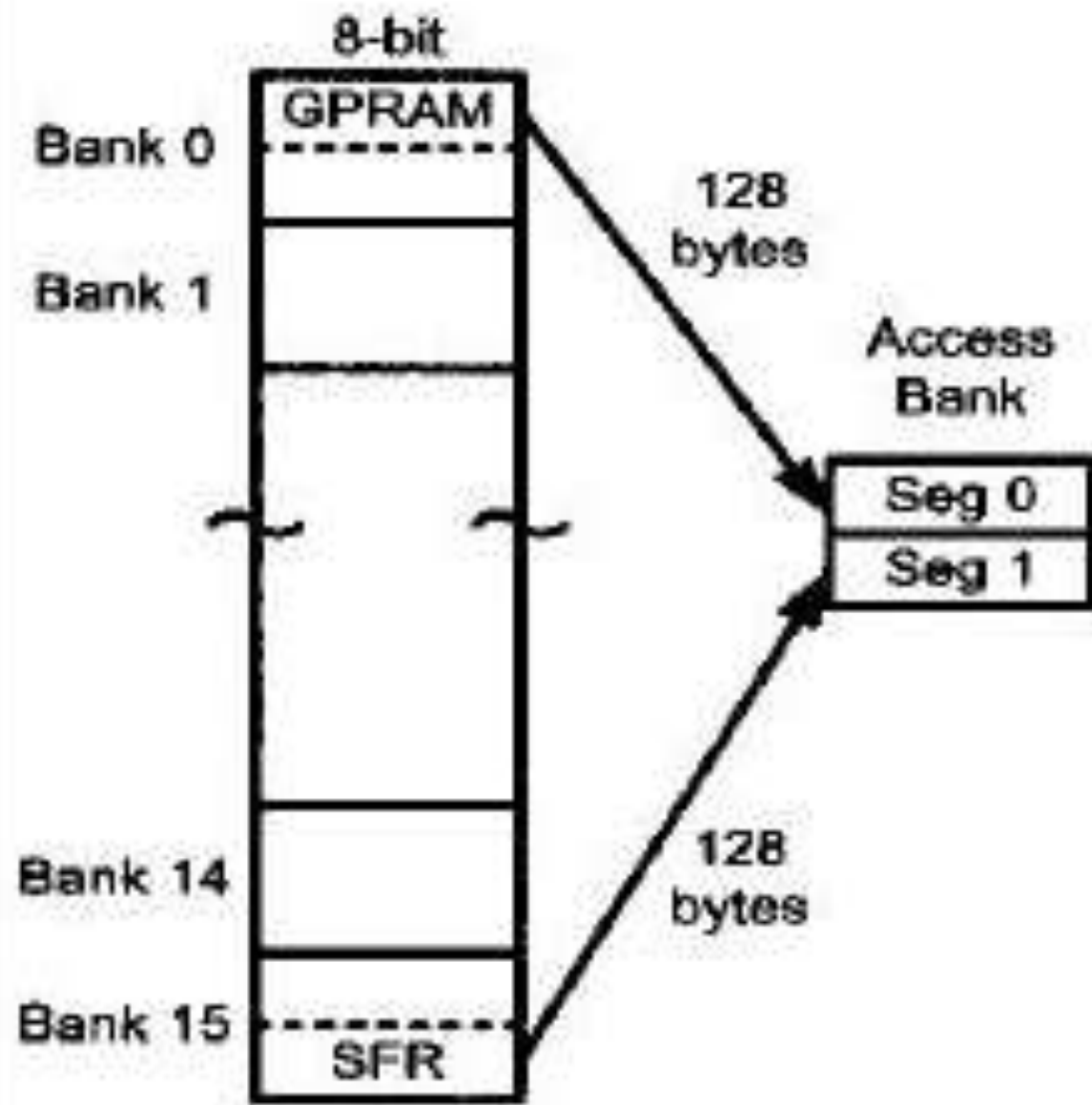


b) File register allocation between GP RAM and SFR

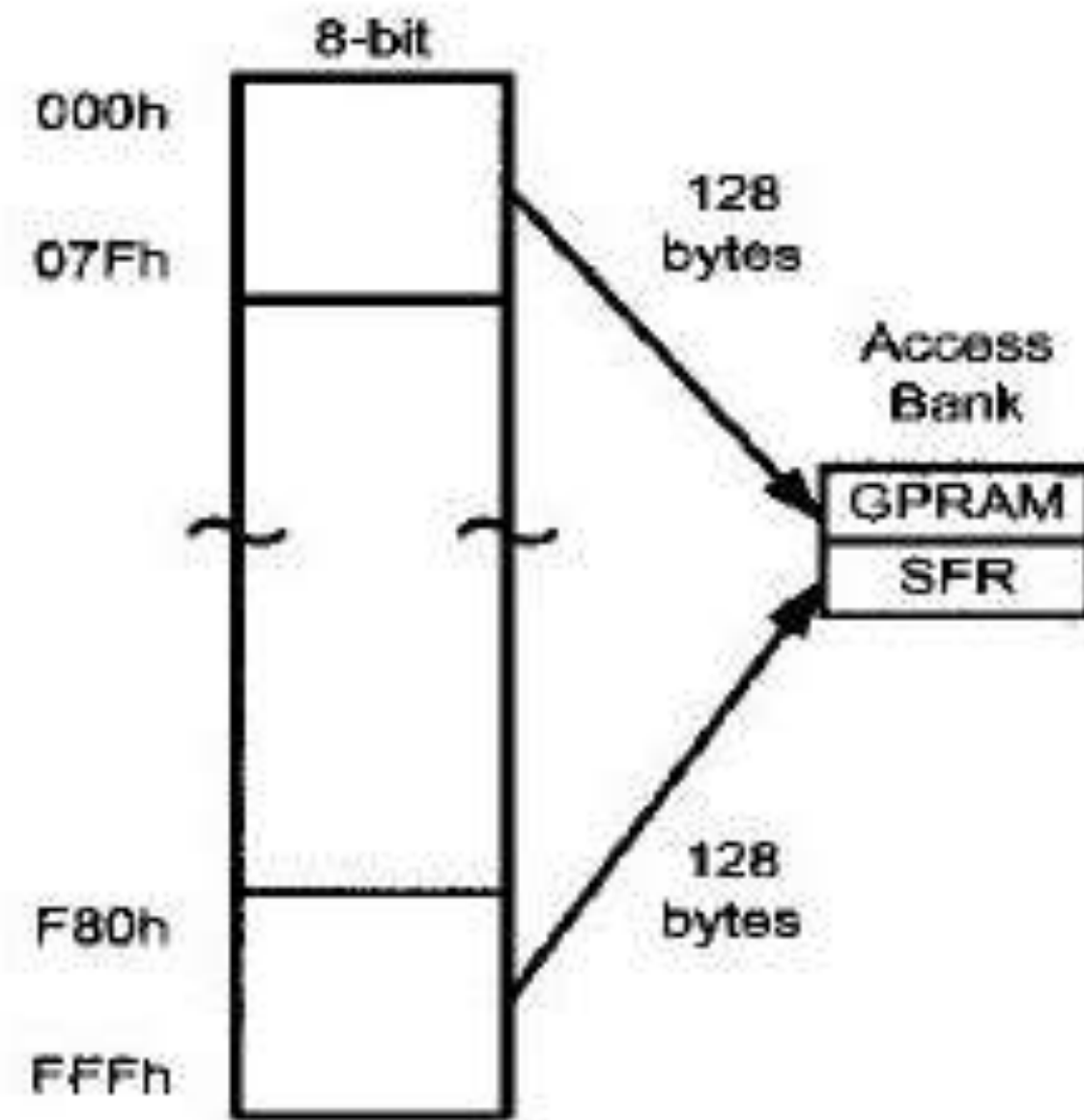
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# File Register & Access Bank in PIC



c) Data memory map



d) Access Bank



## File Register & Access Bank in PIC

- The 256 byte access bank is divided into two equal sections of 128 bytes.
- These 128 bytes sections are given to the general purpose registers and special function registers.
- The 128 bytes from locations 00H to 7FH are set aside for general purpose registers and are used for read / write storage, or what is normally called scratch pad.



## File Register & Access Bank in PIC

- These 128 locations of RAM are widely used for storing data and parameters by PIC18 programmers and C compilers.
- Each location of this 128 byte RAM of general purpose registers can be accessed directly by its address.
- We will use these locations in future chapters to store data brought into the CPU via I / O and serial ports.
- Will also use then to define counters for time delay.



## **File Register & Access Bank in PIC**

- The other 128 bytes of the access bank is used for special function registers.
- It has addresses of F80H to FFFH



## **Why the memory space of the SFRs and GPRs in the access bank is not contiguous?**

- The reason is to allow the RAM space between 080H and F7FH to be used for the general purpose registers GPRs by various members of the PIC18 if they implement a larger data RAM size for the file register.
- A file register of more than 256 bytes will necessitate bank switching.





## File Registers and Access Bank in PIC



- When programming the WREG register of the PIC microcontroller with a literal value, the following points should be noted:
  - Values can be loaded directly into the WREG register.
  - There is no need for a preceding pound sign or dollar sign to indicate that a value is an immediate value as is the case with some other microcontrollers.
  - If values 0 to F are moved into an 8-bit register such as WREG, the rest of the bits are assumed to be all zeros