



SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

19ECB211 – MICROCONTROLLER PROGRAMMING & INTERFACING

II YEAR IV SEM

UNIT I – PIC MICROCONTROLLER : HISTORY , FEATURES & ARCHITECTURE

TOPIC 4 – File Registers and Access Bank in PIC

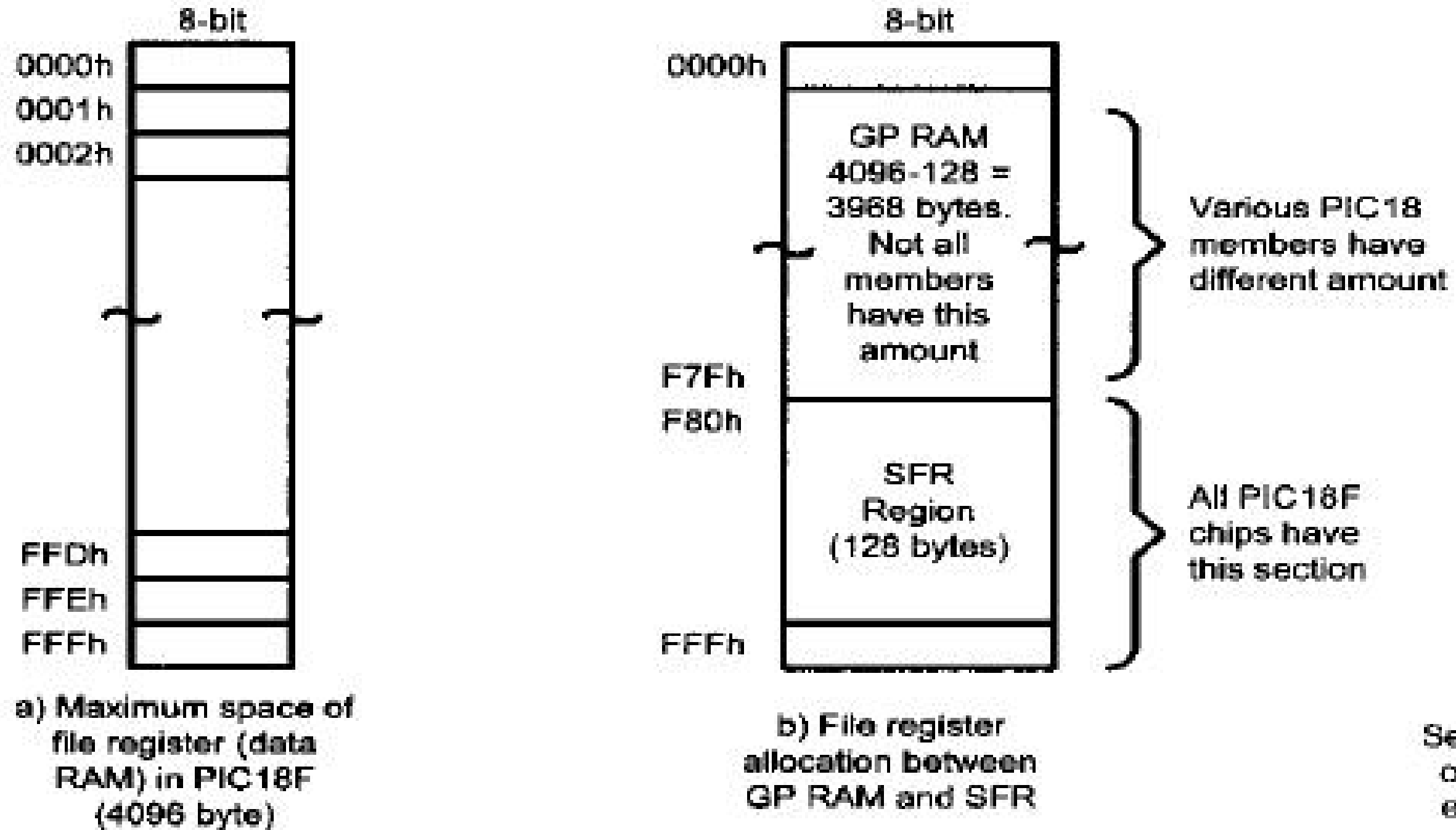


File Register & Access Bank in PIC

- 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.

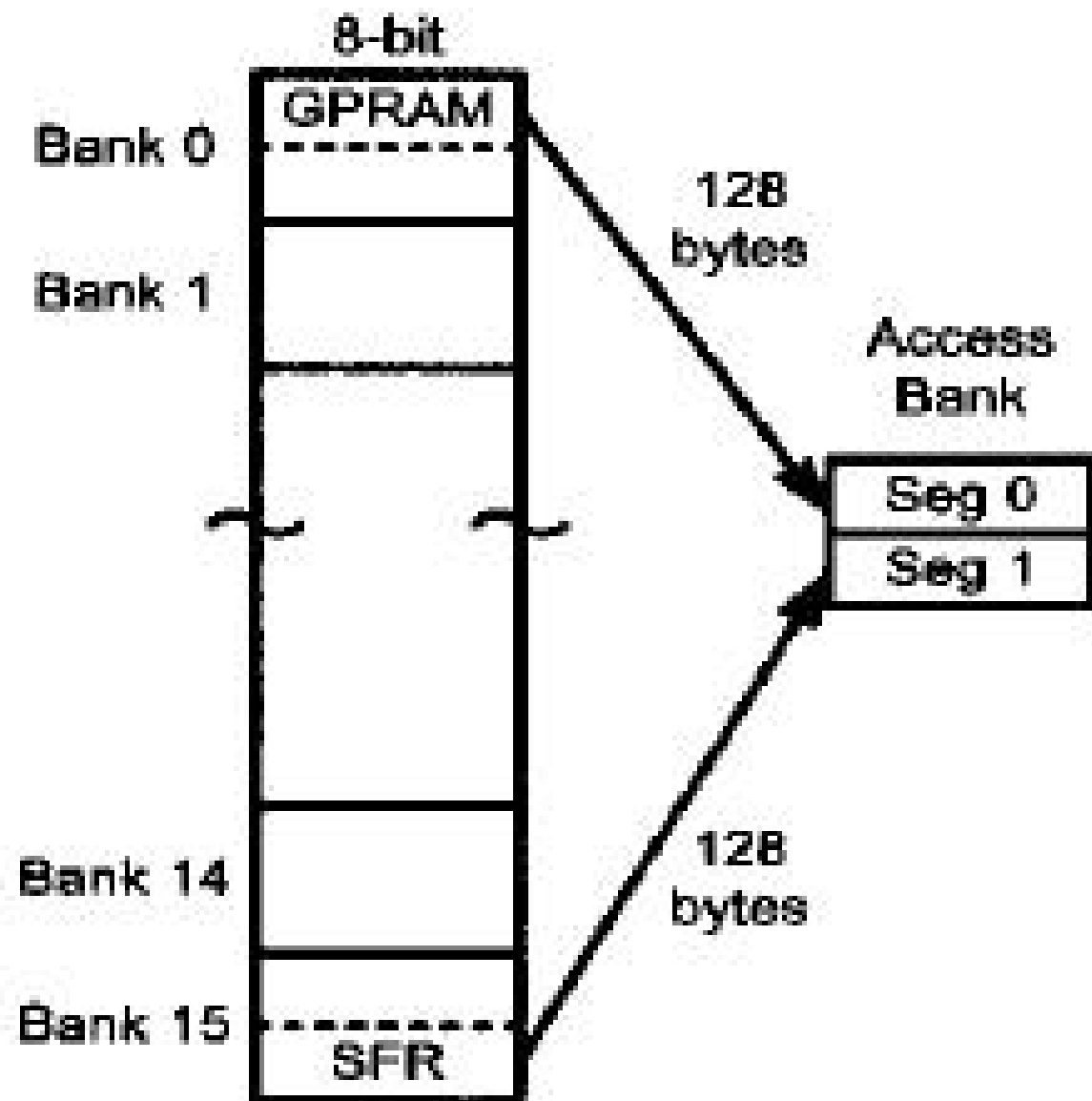


File Register in PIC

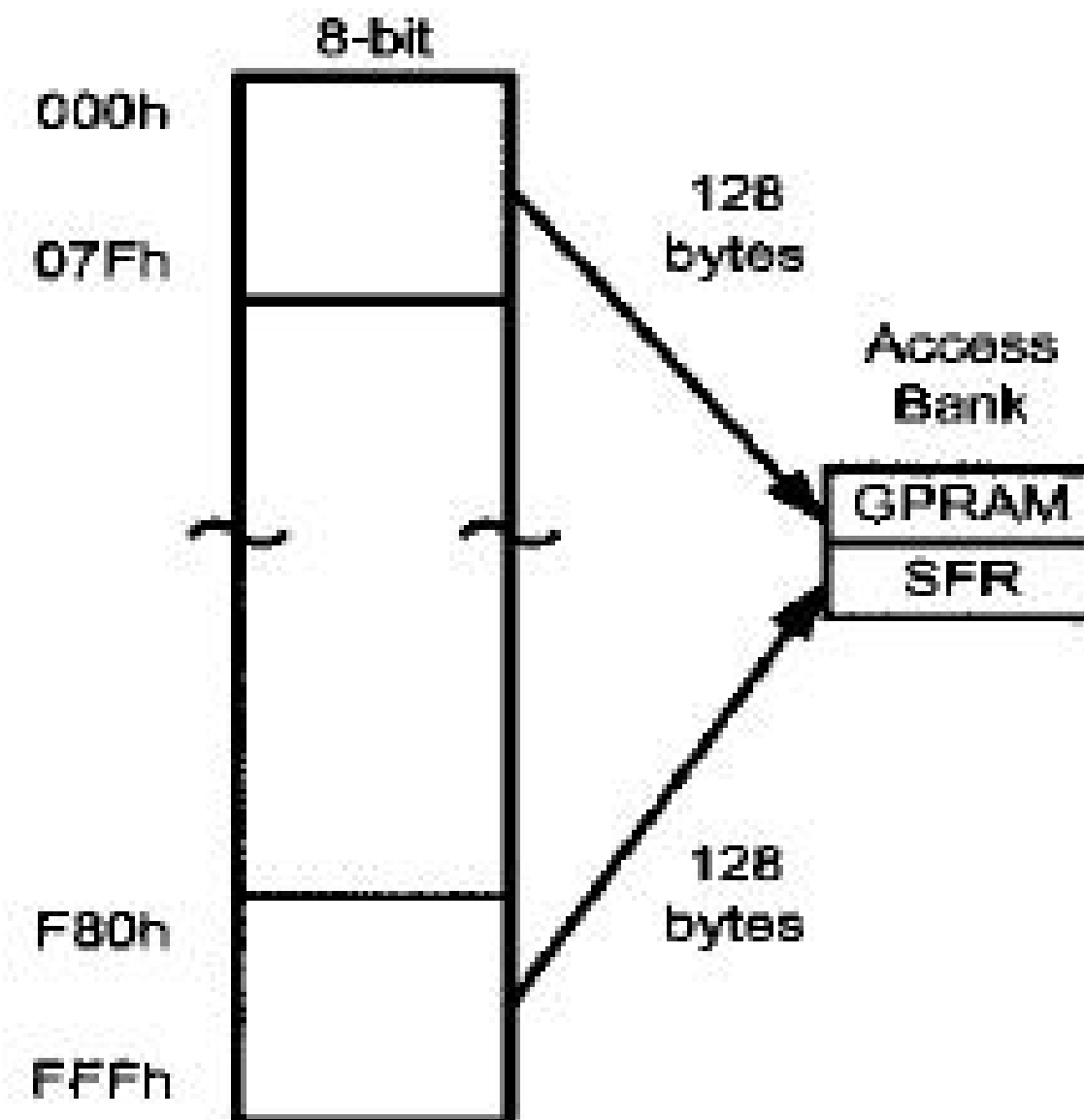




File Register & Access Bank in PIC



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.



RISE OF MICROCONTROLLER



- 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



References

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Thank You