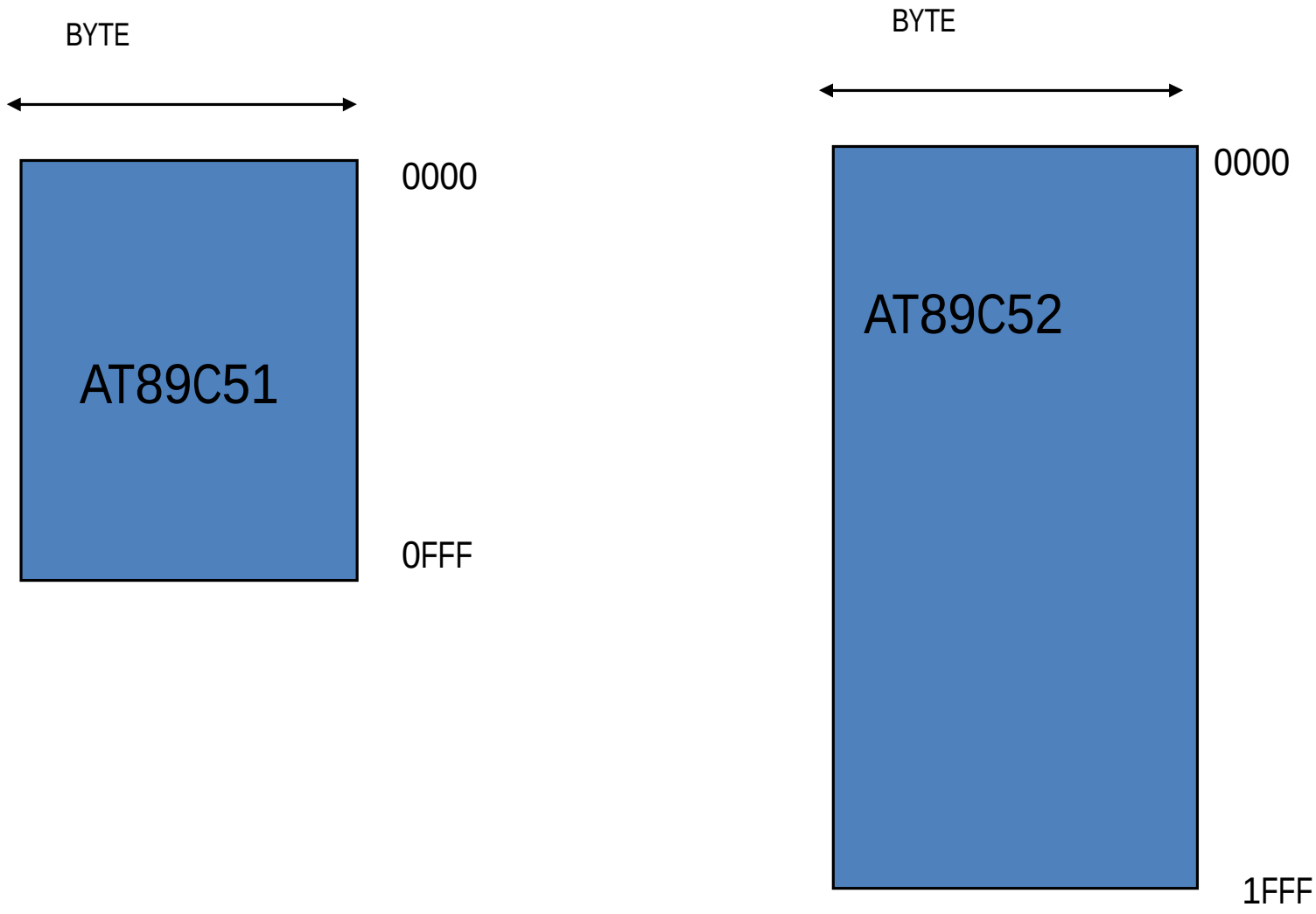
Microcontroller and Embedded Systems

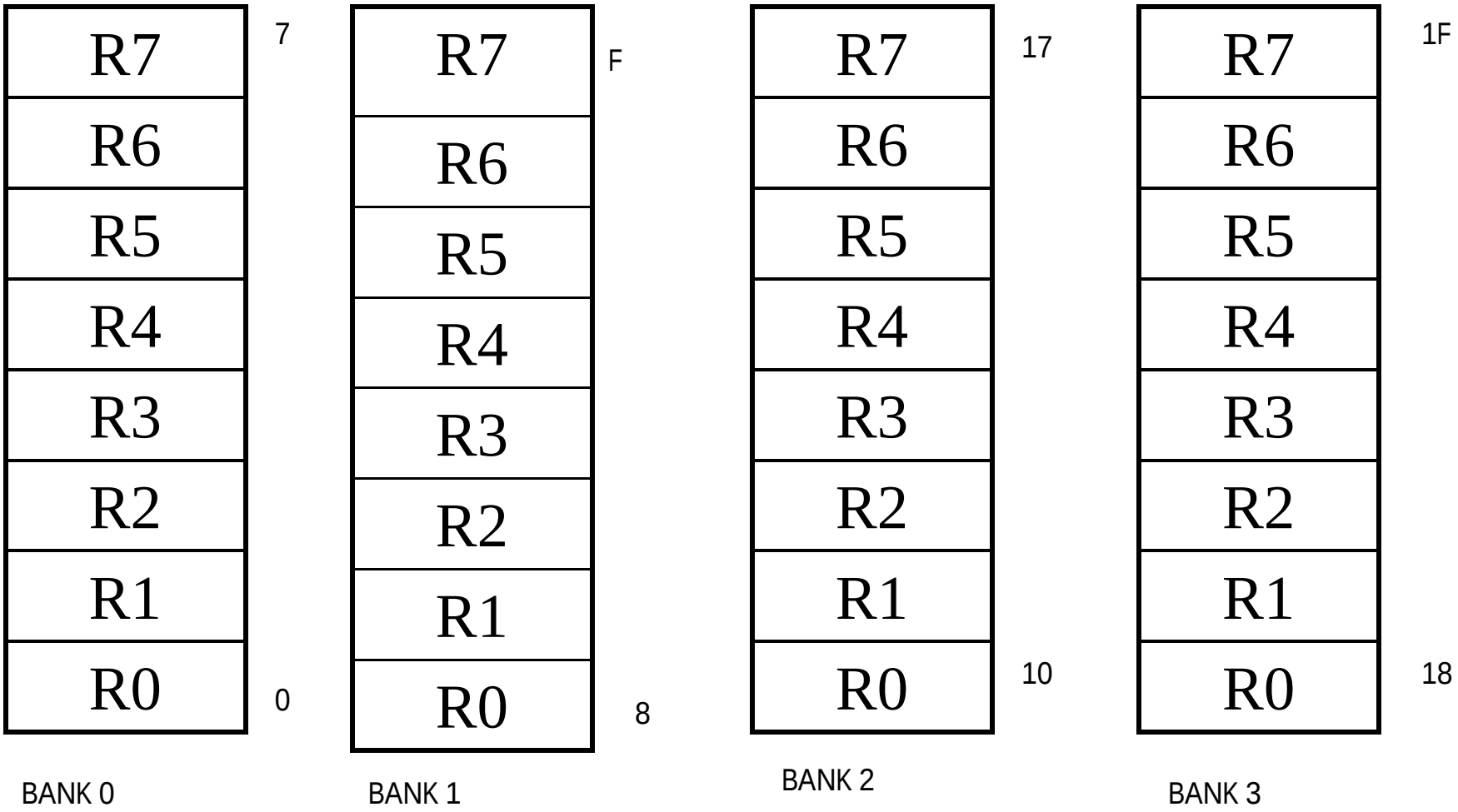
8051 MICROCONTROLLER ON CHIP ROM



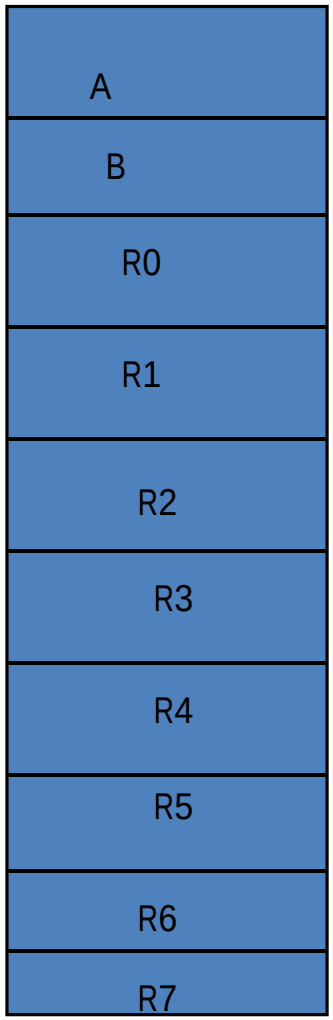
ON CHIP ROM ADDRESS RANGE

RAM ALLOCATION IN 8051

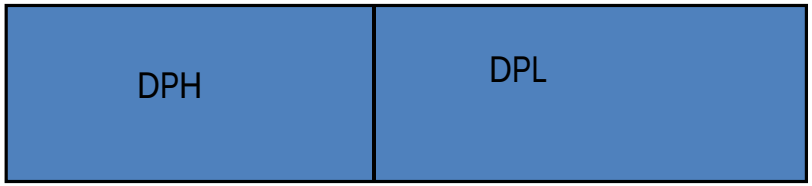
REGISTER BANKS



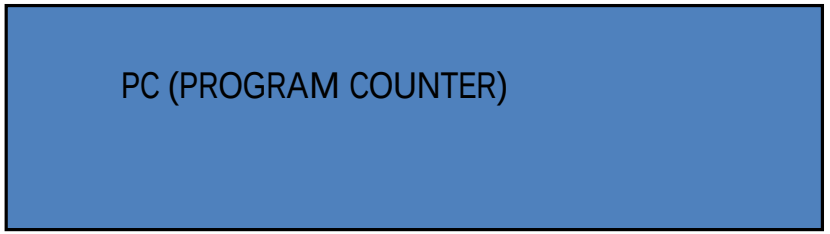
REGISTERS OF 8051



8-BIT REGISTERS

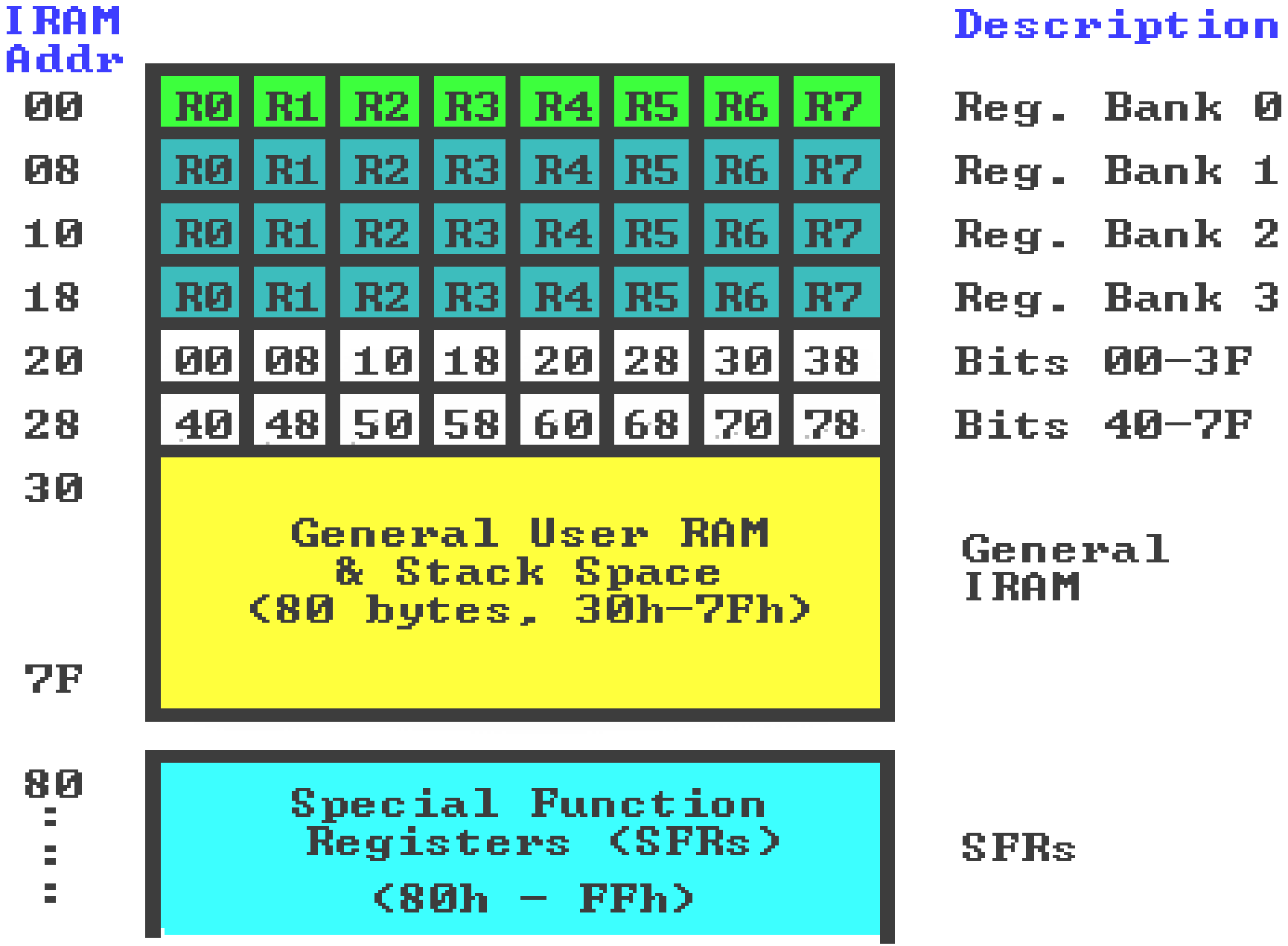


DPTR

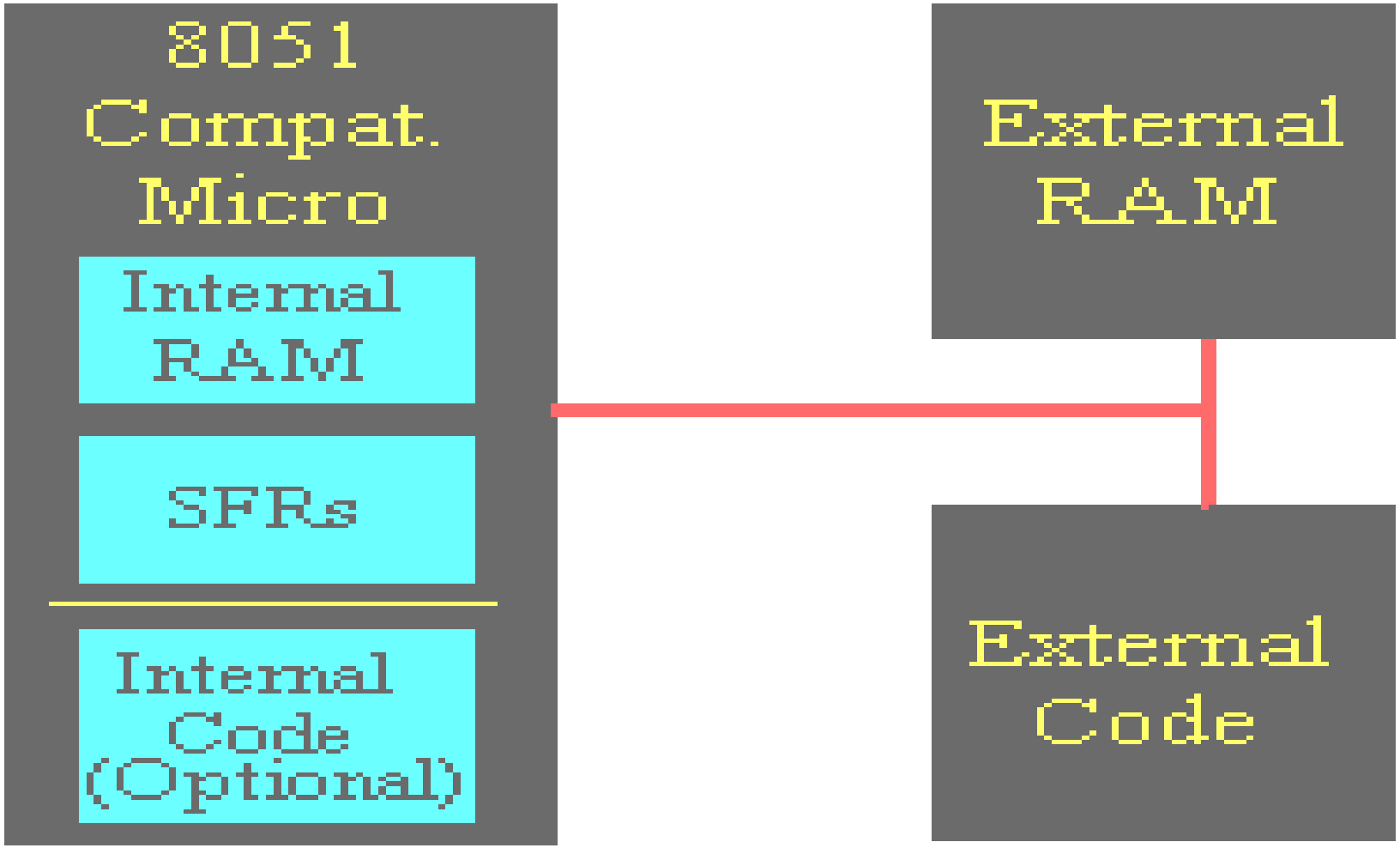


16-BIT REGISTERS

On-Chip Memory.



8051: Types of memory



8051: Types of memory

- **On-Chip Memory refers to any memory** (Code, RAM, or other) that physically exists on the microcontroller itself. On-chip memory can be of several types, but we'll get into that shortly.
- **External Code Memory is code (or program)** memory that resides off-chip. This is often in the form of an external EPROM.
- **External RAM is RAM memory that** resides off-chip. This is often in the form of standard static RAM or flash RAM.

CODE MEMORY

- Code memory is the memory that holds the actual 8051 program that is to be run.
- This memory is limited to 64K.
- It may be found *on-chip, either burned into the microcontroller as* ROM or EPROM. Code may also be stored completely *off-chip in an external ROM or, more* commonly, an external EPROM.
- it is possible to have 4K of code memory *on-chip and 64k of code* memory *off-chip in an EPROM.*

External RAM

- It is off-chip, it is not as flexible in terms of accessing, and is also slower as compared to internal RAM.
- While Internal RAM is limited to 128 bytes the 8051 supports External RAM up to 64K.