# Memory Banks

| STATUS (0x03, 0x83, 0x103, 0x183) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Pin | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| Name | IRP | **RP1** | **RP0** | TO | PD | Z | DC | C |

RP1: RP0: Determines which bank you're in.

00: Bank 0 (RAM 0x00 to 0x7F)
01: Bank 1 (RAM 0x80 to 0xFF)
10: Bank 2 (RAM 0x100 to 0x17F)
11: Bank 3 (RAM 0x180 to 0x1FF)

- When you read an address in assembler, only the low 7 its of the address are used.
- To tell the PIC chip which bank you want to be reading, you need to set flags RP0 and RP1 in the STATUS register.
- As a result, the process for reading or writing data to Bank 1 or Bank 2 is:
  - First, set RP0 and RP1 for the bank you want to read or write from.
  - Read or write to RAM
  - Reset RP0 and RP1 to Bank 0 (making Bank 0 the default bank).

**Example:** Write the number 0x30 to address 0x086

note: Address 0x86 = address 0x06 in Bank 1.

The address is the 7 LSB. The two MSB come from RP1:RP0:

| Address | RP1: RP0 | lowest 7 bits |
|---|---|---|
| 0x086 = b 0000 1000 0110 | 0:1 | 000 0110 |

```
bcf     STATUS,6
bsf     STATUS,5    ; go to bank 1
movlw   0x30
movwf   0x06        ; write 0x30 to address 0x086
bcf     STATUS,6    ; go back to bank 0
bcf     STATUS,5
```