Addressing Modes

There are 3 types of addressing modes:

1. Immediate addressing mode
   - Immediate operand is a number or constant, not an address.
   - Example: MOVlw 43h → operand data, not address.

2. Register operand mode
   - Deals with registers.
   - Example: CLR W

3. Memory operand mode
   - Direct or indirect addressing.
   - Direct: We use (IndF, FSR) registers.
   - Indirect: 00h

Direct addressing
- CLRF 13h
- 2 bits
- RPI, RPO

9 bit address
- Direct addressing
- Instructions

* Each GPR is an 8-bit word & is accessed either directly or indirectly through the FSR
example of direct addressing

BSF Status, RPo
MOVlw 0xFF
MOVWF TrisA  \rightarrow address of This A Register is

Taken from instruction movwf

PORTA (05h)  \rightarrow TrisA (85h)
PORTB (06h) \rightarrow TrisB (86h)

* Indirect addressing:

1. Does not take an address from an instruction but derives it
   from IRP bit of Status & FSR register.

   IRP
   [ ] 7 6 5 4 3 2 1 0

   (FSR) (I NDF) Registers

   In the instruction \( \text{movwf} \) . Instruction
   \[ \text{movwf} \] .

   \[ \text{movwf} \] .

   FSR  \rightarrow \text{pointer}

   \[ \text{movwf} \] .

   \[ \text{movwf} \] .

   FSR  \rightarrow \text{pointer}

   \[ \text{movwf} \] .

   \[ \text{movwf} \] .

   register  FSR  \rightarrow  \text{pointer}  *

   \[ \text{movwf} \] .

   \[ \text{movwf} \] .

   FSR  \rightarrow  \text{pointer}  *

   \[ \text{movwf} \] .

   \[ \text{movwf} \] .

   FSR  \rightarrow  \text{pointer}  *

   \[ \text{movwf} \] .

   \[ \text{movwf} \] .

   FSR  \rightarrow  \text{pointer}  *
Code 8

Start
BSF Status,RPO
CLRF TnsB
BCF Status,RPO

Loop: MOV LW OCH
       MOV W FSR

Loop 2: MOV F 0X4F, W
         MOV W PORTB
         Goto Loop 2

End

Code for clearing general purpose registers

Start
BSF Status,RPO
CLRF TnsB
BCF Status,RPO

Loop: MOV LW OCH
       MOV W FSR

Loop 2

MOV W 50h
SUB W FSR, W (XOR W FSR)
BTFSS Status, 7
       Goto Loop

First 8

MOV LW 14h
SUB W FSR
BTFSS Status, 7
       Goto Loop
Start

BSF Status, RP0
CLRF Tris B
BCF Status, RP0
MOVLO OCH
MOVWF FSR

Loop

MOVLO OXSS
MOVWF INDF
INCF FSR, F
MOVLO 50H
SUBWF FSR, W
BTFSS Status, Z
GOTO Loop

MOVLO OCH
MOVWF FSR

Loop2

(CL0X06)

CLRF INDF
INCF FSR, F

MOVLO 0XH44Fh

SUBWF FSR.W

BTFSS Status, Z
GOTO Loop2

End

W C = 001 0000
FSR 0 = 0000 1110

1011101

0 OC
1 OD
2 OE
3 OF
4 10
5 11
6 12
7 13
8 14