

## PIC PUSH and POP macros. Save the machine state

Save the machine state - primarily I use these either side of the Interrupt Service Routine (ISR). This is not strictly like these instruction in "proper" CPUs as we have no accessible stack to play with but it takes care of keeping things straight in important places - remember it is only one level deep - if you call PUSH, while PUSHed, you'll lose state and your PIC will behave oddly (unless you mean to do it).

You'll have to arrange the storage registers - try to put them in a globally accessible area of the registers (&h70 on 16f87x) so you can be sure to get to them whichever BANK is currently selected.

Make sure no interrupts happen while you are PUSHing or POPing.

```
; PUSH/POP save and restore W,PCLATH,STATUS and FSR registers -
; used on interrupt entry/exit

PUSH    MACRO
    MOVWF    SAVED_W            ; save w reg
    SWAPF    STATUS,W          ; The swapf instruction, unlike the movf,
affects NO status bits, which is why it is used here.
    CLRF     STATUS            ; sets to BANK0
    MOVWF    SAVED_STATUS      ; save status reg
    MOVF     PCLATH,W
    MOVWF    SAVED_PCLATH      ; save pclath
    CLRF     PCLATH
    MOVF     FSR,W
    MOVWF    SAVED_FSR        ; save fsr reg
ENDM

POP     MACRO
    MOVF     SAVED_FSR,W        ; get saved fsr reg
    MOVWF    FSR                ; restore
    MOVF     SAVED_PCLATH,W      ; get saved pclath
    MOVWF    PCLATH             ; restore
    SWAPF    SAVED_STATUS,W      ; get saved status in w
    MOVWF    STATUS             ; restore status ( and bank )
    SWAPF    SAVED_W,F          ; reload into self to set status bits
    SWAPF    SAVED_W,W          ; and restore
ENDM
```

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