C Language Quick Guide

CREATING POINTERS

```
int *PTR = address;          int *PORTA = 0xF80;
int16 *PTR =addressLow;      int16 *PORTAB = 0xF80;
```

USING POINTERS:

```
*PTR = eightBitValue;        *PORTA = 0x00;
                             *PORTAB = 0x0000;
```

SINGLE BIT BITMASKING

```
*PTR |= mask;                *PORTA |= 0x01;
*PTR&=mask;                  *PORTA&=0xFE;
*PTR^=mask;                  *PORTA^=0x01;
```

MULTI BIT BITMASKING

```
*PTR |= mask;                *PORTA |= 0x011;
*PTR&=mask;                  *PORTA&=0xEE;
*PTR^=mask;                  *PORTA^=0x11;
```

MIXED BITMASKING

```
*PTR = (*PTR | mask) & mask2;    *PORTA = (*PORTA |0x01) & 0x7F;
```

CREATING STRUCTURES TO REGISTERS

INDIVIDUAL BITS

```
struct dataTypeName{
    int bitNameA:1;
    int bitNameB:1;
    int bitNameC:1;
    int bitNameD:1;
    int bitNameE:1;
    int bitNameF:1;
    int bitNameF:1;};
struct dataTypeName *POINTER = address;
```

```
struct myPort{
    int PIN_A0:1;
    int PIN_A1:1;
    int PIN_A2:1;
    int PIN_A3:1;
    int PIN_A4:1;
    int PIN_A5:1;
    int PIN_A6:1;};
struct myPort *PORTA = 0xF80;
```

CREATING STRUCTURES AROUND REGISTERS

Structure on ADCON1 EXAMPLE

HINT: Always start from the LEAST significant. (FROM RIGHT TO LEFT). If you find multiple bits with the similar names put tem together in the list.

ADCON1 is found on page 224 (18F4520 DataSheet)

```
structure _adcon1{
    int PCFGx:4;
    int VCFGx:2;
    int unused:2;};
struct _adcon1 *ADCON1 = 0xFC1;
```