PWM FUNCTIONS

Original by F.Zia, rewritten for the PIC18F4550 by M.F.v.Lieshout, March 2006

Information sources:

The information in this document is obtained from the following Microchip manuals:

- PIC18F4550 Datasheet
- PICmicro® 18C MCU Family Reference Manual
- MPLAB C18 C Compiler Libraries

Function Prototypes:

For a detailed description of these functions, please see:
Section 2.7 Pulse-Width Modulation Functions, in MPLAB C18 C Compiler Libraries manual.

The PIC18F4550 has 2 PWM channels available, so x is 1 or 2 in this case.

```
#include <pwm.h>
void OpenPWMx ( char PR2 ); // Configure PWM channel x.
void SetDCPWMx ( unsigned int dutycycle ); // Write a new duty cycle value to
PWM channel x.
void ClosePWMx ( void ); // Disable PWM channel x.
```

Notes:

1. ***PR2*** can be any value from `0x00` to `0xff`. This value determines the PWM frequency by using the following formula:
PWM period =[(***PR2***) + 1] x 4 x TOSC x TMR2 prescaler
2. The value of ***dutycycle*** can be any 10-bit number. Only the lower 10-bits of ***dutycycle*** are written into the duty cycle registers. The duty cycle determines the high time of the PWM waveform.
3. PWM uses TIMER2 for time base. In addition to opening the PWM, TIMER2 must also be opened with an `OpenTimer2(...)` statement before the PWM will operate. See the other manual for the timer functions.
4. TIMER2 postscaler is not used in the determination of the PWM frequency. TIMER2 postscaler could be used to generate TMR2 interrupts at a different frequency than the PWM output.
5. On the PIC18F4550, also an enhanced PWM can be used. The enhanced PWM can be used for motor driving: half-bridge and full-bridge (forward and reverse). See the MPLAB C18 C Compiler Libraries manual for the functions.