# ChangePin

This is an embedded C module which will force an I/O pin into some state.  Note that:

- MMBasic does not know about this change and will still think that the pin is in its original setting.

- There is no error checking on the arguments supplied to this subroutine and invalid values will probably cause an exception and a processor reset.

- It is possible to place an I/O pin into a nonsensical configuration and in that case the outcome is undefined.

## Adding the ChangePin Subroutine

To add the ChangePin subroutine to MMBasic you must insert the following code somewhere in your BASIC program (you can use copy and paste from this document).  The exact spot is not important but at the end of the program is typical.

```
CSub ChangePin
    00000000 27BDFFE0 AFB10014 3C119D00 AFB00010 8CA50000 00808021 8E220024
    8C840000 AFBF001C 0040F809 AFB20018 00409021 8E220028 0040F809 8E040000
    24030001 8FBF001C 00431004 AE420000 00001821 00001021 8FB20018 8FB10014
    8FB00010 03E00008 27BD0020
End CSub
```

## Parameters

The ChangePin subroutine (created by adding the above code) takes two arguments:

    ChangePin  pin,  function

Where    *pin* is the I/O pin's number
         *function* is the change to make to the I/O pin

*function* is a number and can be any one of these:

| | | |
|---|---|---|
| -7 | ANSELCLR | Disable analogue input |
| -6 | ANSELSET | Force analogue input |
| -3 | TRISCLR | Digital output |
| -2 | TRISSET | Digital input |
| -1 | TRISINV | Invert the digital input/output setting (ie, flip input to output) |
| 5 | LATCLR | Digital output low |
| 6 | LATSET | Digital output high |
| 7 | LATINV | Invert the current digital output value (is, low to high) |
| 9 | ODCCLR | Normal output (not open drain) |
| 10 | ODCSET | Open drain output |
| 11 | ODCINV | Invert open drain setting |
| 13 | CNPUCLR | Disable pull up resistor |
| 14 | CNPUSET | Enable pull up resistor (do not use on an output) |
| 15 | CNPUINV | Invert pull up setting |
| 17 | CNPDCLR | Disable pull down resistor |
| 18 | CNPDSET | Enable pull down resistor (do not use on an output) |
| 19 | CNPDINV | Invert pull down setting |

Note that the mnemonic (LATCLR, etc) refers to the name of the relevant PIC32 register.

## Using the Function

As an example the following will add an internal pullup resistor to a frequency input pin:

```
SETPIN 15, FIN       ' set pin 15 as a frequency input
CHANGEPIN 15, 14     ' add a pullup resistor to that pin
```