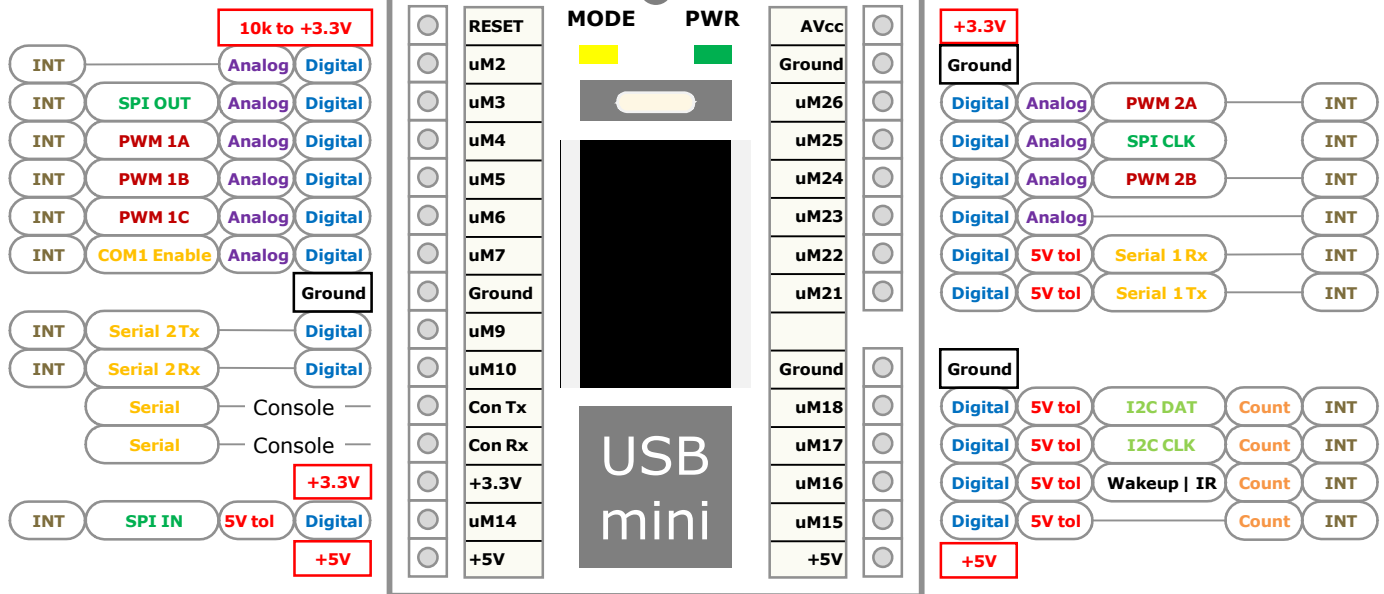


# CGEXPLORE28 Pinout



## Key

Digital	Digital Input / Output
Analog	Analog Input
5V tol	5V Tolerance
PWM	Pulse Width Modulation
INT	Interrupt
Count	Count Input
Serial	Asynchronous Serial
SPI	Serial Peripheral Interface
I2C	Inter Integrated Circuit
Wakeup   IR	Chip Wake Up / Infrared input

## Specifications:

Processor: PIC32MX170 - 32 bit  
 Clock speed: 5 - 48MHz  
 RAM: 52 kbytes  
 FLASH: 60 kbytes  
 MMBasic Interpreter 30k lines/sec  
 Processor current draw: ~30mA  
 I/O lines: 19  
 Console Communication: 38400 8N1

## Capabilities:

Digital I/O  
 Analog Input  
 UART  
 SPI  
 I2C  
 1-wire  
 Pulse Counting  
 Frequency Measurement  
 PWM/Servo  
 IR Remote Tx/Rx

## Firmware Reprogramming: (mode switch)

The MODE button is used for firmware reprogramming and reset.

Default is yellow mode LED off: This uses the USB connection for MMBasic console.

A long press will flash the yellow mode LED. When released the MX170 is reset

A short press places the Explore28 into firmware reprogramming mode and solidly lights the yellow LED.

When in reprogramming mode, a long button press will return the USB connection to MMBasic console and turn off the yellow mode LED.

Use **SETPIN pin, cfg [, option]** to configure the I/O pins.

'pin' is the I/O pin to configure, 'cfg' is the mode that the pin is to be set to and 'option' is an optional parameter. 'cfg' is a keyword and can be any one of the following:

- OFF** Not configured or inactive.
- AIN** Analog input ( ie, measure the voltage on the input).
- DIN** Digital input. If 'option' is omitted the input will be high impedance If 'option' is the keyword **"PULLUP"** an internal resistor will be used to pull up the input pin to 3.3V If the keyword **"PULLDOWN"** is used the pin will be pulled down to zero volts. The value of the pull up or down is the equivalent of about 100K.
- FIN** Frequency input. 'option' can be used to specify the gate time (the length of time used to count the input cycles). It can be any number between 10 mS and 100000 mS. Note that the PIN() function will always return the frequency correctly scaled in Hz regardless of the gate time used. If 'option' is omitted the gate time will be 1 second.
- PIN** Period input. 'option' can be used to specify the number of input cycles to average the period measurement over. It can be any number between 1 and 10000. Note that the PIN() function will always return the average period of one cycle correctly scaled in mS regardless of the number of cycles used for the average. If 'option' is omitted the period of just one cycle will be used.
- CIN** Counting input.
- DOUT** Digital output. 'option' can be **"OC"** in which case the output will be open collector (or more correctly open drain). The functions PIN() and PORT() can also be used to return the value on one or more output pins.

Use **SETPIN pin, cfg, target [,option]** to interrupts from pins.

'pin' is the I/O pin to configure, 'cfg' is a keyword and can be any one of the following:

- OFF** Not configured or inactive.
  - INTH** Interrupt on low to high input.
  - INTL** Interrupt on high to low input.
  - INTB** Interrupt on both ( ie, any change to the input).
- 'target' is a user defined subroutine which will be called when the event happens. Return from the interrupt is via the END SUB or EXIT SUB commands. The keyword **"PULLUP"** and **"PULLDOWN"** work as described above. Any I/O pin capable of digital input can be configured to generate an interrupt with a maximum of ten interrupts configured at any one time. This mode also configures the pin as a digital input so the value of the pin can always be retrieved using the function PIN().