# **Group 5 Library 2 Components**

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**Roles:**

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**Definitions**

Void E4235\_PUPB(int GPIO\_Num, int PUPDValue)

* **Functionality:** This function sets a specified GPIO pin to set the internal pull up/pull down resistor. Note that E4235\_PUPD() contains the backend to set up the RP4 pins, therefore, does not require any additional functions to be invoked before calling E4235\_PUPD() (such as a select() or init() function), it can be called on its own. The function returns void but will output to the user an error message if invalid values for the parameters were entered.
* **Parameters:** 
  + GPIO\_Number: is a valid GPIO value from 0 through 29. Note that this is NOT the pin value of a GPIO.
    - E.g. GPIO3 means GPIO\_Number == 3
  + Value: represents choosing a Pull Up setting on the GPIO (i.e. PUPDValue = 1), or choosing a Pull Down setting on the GPIO (i.e. PUPDValue = 0).
* **Error Messages:**
  + If an invalid GPIO value is given to the function, an error message “GPIO number not valid,please provide a valid GPIO number” is output.
  + If an invalid PUPD value is given, an error message “Value not valid, please provide a valid value” is output.

**ASM Calling PUPD()**

|  |
| --- |
| .global main  .extern E4235\_PUPD  .text  main:  mov r0,#17 @set GPIO value in r0  mov r1, #1 @set PUDB value in r1  bl E4235\_PUPD @branch to function to invoke it  mov r7,#1  svc 0 |

**C Calling PUPD()**

|  |
| --- |
| #include <stdio.h>  #include <stdlib.h>  extern void E4235\_PUPD(int,int);  int main(){  // calling function using parameters specified in documentation/method signature  E4235\_PUPD(4,0); // i.e. GPIOVal = 4, PUDBVal = 0  E4235\_PUPD(17,1);  E4235\_PUPD(15,1);  return 0;    } // main |

## 

**References**

[1] BCM2711 Datasheet: <https://datasheets.raspberrypi.com/bcm2711/bcm2711-peripherals.pdf>

[2] Used as a basis for our code: <https://gist.github.com/mathis-m/facd241fe1f324c7b22338484f60338f>

[3] How to use mmap: <https://bob.cs.sonoma.edu/IntroCompOrg-RPi/sec-gpio-mem.html>