GPIO

### Introduction

GPIO (General-purpose input/output) is an uncommitted digital signal pin on electronic board which may be used as an input or output, or both, and is controllable by the user at [runtime](https://en.wikipedia.org/wiki/Runtime_(program_lifecycle_phase)" \o "Runtime (program lifecycle phase)).

GPIOs have no predefined purpose and are unused by default. The GPIO module controls the device's digital I/O MUX, which uses shared pins to maximize application flexibility. The pins are named by their general-purpose I/O name (for example, GPIO0, GPIO25, GPIO58). These pins can be individually selected to operate as digital I/O (also called GPIO mode), or

connected to one of several peripheral I/O signals.

### *Pin configuration for F28379D*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Port A** | **Port B** | **Port C** | **Port D** | **Port E** | **Port F** |
| **MUX1** | 0-15 | 32-47 | 64-79 | 96-111 | 128-143 | 160-168 |
| **MUX2** | 16-31 | 48-63 | 80-95 | 112-127 | 144-159 |  |

### Usage

To make GPIOs work for our system, we need to configure GPIOs for SPI and SCI. Note that only some of the GPIOs ARE high speed ones. In our function file Pininit.c, we first specify high speed GPIOs, and then we specify GPIOs for 16bit DAC, ADC and 20bit DAC. And finally we name some GPIOs for tip approach.

Up to twelve independent peripheral signals are multiplexed on a single GPIO-enabled pin in addition to the CPU-controlled I/O capability. Each pin output can be controlled by either a peripheral or one of the four CPU masters (CPU1, CPU1.CLA, CPU2, or CPU2.CLA). On reset, GPIOs are in input mode and have the internal pullups disabled. An un-driven input can float to a mid-rail voltage and cause wasted shoot-through current on the input buffer.

In summary, to get your GPIOs for basic use, you need to:

1. Configure normal/high speed pins for SPI and SCI
2. Put each GPIO in one of these configurations:

* Input mode and driven on the board by another component
* Input mode with GPIO internal pullup enabled
* Output mode

1. Set the initial value for each pin

### *Table for high speed mode pins on our board*

|  |  |  |
| --- | --- | --- |
| GPIO58 | GPIO63 | GPIO69 |
| GPIO59 | GPIO64 | GPIO70 |
| GPIO60 | GPIO65 | GPIO71 |
| GPIO61 | GPIO66 | GPIO72 |