

MSPM0 I/O module introduction

— MSPM0 peripheral training series

Presented by Sal Ye

MSPM0 I/O module introduction

GPIO module

Key Features

- Standard-drive with wake IO is for SHUTDOWN wakeup
- Up to 5 high speed GPIOs (HSIO) support up to 40MHz frequency
- Up to 4 high drive GPIOs (HDIO) are able to output 20mA current to drive the load
- 5V tolerant open-Drain GPIOs enable 5V communication without level shifter devices
- Unused pin should be set as GPIO output intern pull-down
- 0 wait state MMR access from CPU enhance SPI or I2C simulation using GPIO

Key Differences between G and L MCUs

- There is no high-drive IO on MSPM0Lxx MCUs
- NRST can be used as GPIO on 20-pin and 16-pin packages on MSPM0Lxx MCUs

Digital IO Type can be found on device data sheet

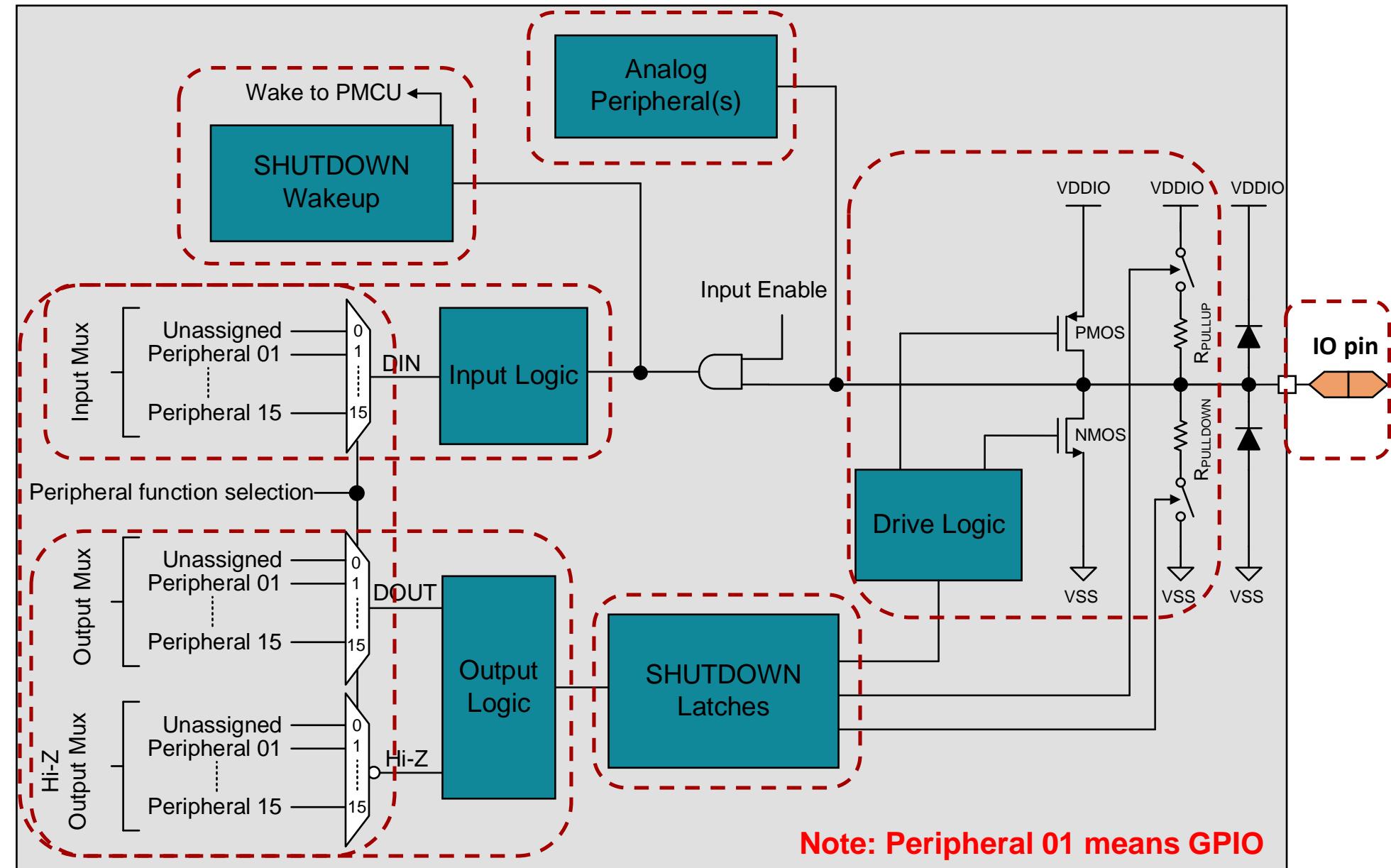
IO Structure	Inversion Ctrl	Drive Strength Ctrl	Hysteresis Ctrl	Pullup Resistor	Pulldown Resistor	Wakeup Logic
Standard-drive	Y			Y	Y	Partial
High-drive	Y	Y		Y	Y	Y
High-speed	Y	Y		Y	Y	
Open-drain	Y		Y		Y	Y

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IOMUX module

Key Features

- Digital input path configuration
 - Hysteresis control
 - Input path enable/disable
 - Input logic inversion control
- Digital output path configuration
 - Drive strength control
 - Output connection enable/disable
 - Output logic inversion (control shared with input logic inversion)
 - Logic-high to High-Z output conversion (for open-drain style interfaces)
 - Retention of "last state" when a peripheral connected to an IO is disabled
- Pullup/pulldown resistor control
- Analog path configuration
- Selection of which peripheral is multiplexed to each digital IO pin (one digital function but multiply analogs if support)
- Wakeup configuration (for wakeup from SHUTDOWN mode)



I/O module quick start

Academy

[I/O introduction lab](#)

Driverlib Examples

MSPM0G350x:

- 📁 gpio_input_capture
- 📁 gpio_software_poll
- 📁 gpio_toggle_output
- 📁 gpio_toggle_output_hiz

MSPM0L13xx:

- 📁 gpio_input_capture
- 📁 gpio_software_poll
- 📁 gpio_toggle_output

Related Links

[MSPM0 online resource](#)

[MSPM0 Quick start guide](#)

[MSPM0 Sysconfig user's guide](#)

[MSPM0G350x datasheet](#)

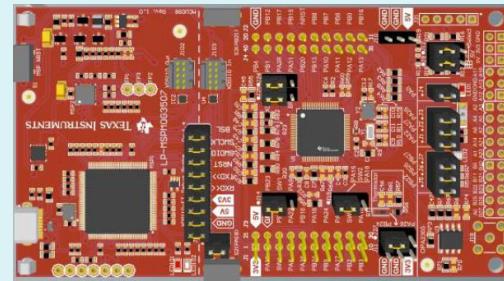
[MSPM0L13xx datasheet](#)

[MSPM0Gxx technical reference manual](#)

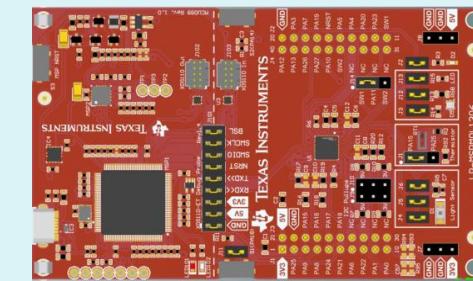
[MSPM0Lxx technical reference manual](#)

Launchpad

[LP-MSPM0G3507](#)



[LP-MSPM0L1306](#)



Sysconfig Entrance for IOMUX Setting

Step1:

Port Port segment Any Any

Advanced Configuration

Board 1/1

GPIO 1

Step2:

Group Pins

1 added

PIN_0

Name PIN_0

Direction Output

IO Structure Any

Digital IOMUX Features

Assigned Port Any

Assigned Port Segment Any

Assigned Pin Any

Interrupts/Events

PinMux Peripheral and Pin Configuration

Other Dependencies

File name Category Include in build

- ti_msp_dl_config.c MSPM0 Driver Library
- ti_msp_dl_config.h MSPM0 Driver Library
- Event.dot MSPM0 Driver Library
- untitled.syscfg Configuration Script

4 Total Files

MSPM0L130X
(Device)
VQFN-32(RHB)
(Package)

SWITCH

Pin Available 24 23 22 21 19 18 17 16

Pin Assigned 15 14 13 12

Warning

Power

Ground

25 26 27 28 29

To find more MSPM0 training series, please visit:

- TI.com.cn
- [WeChat \(德州仪器公众号\)](#)
- [Bilibili](#)
- [21IC](#)