MSPM0 I/O module introduction

—— **MSPM0 peripheral training series**

Presented by Sal Ye

TEXAS INSTRUMENTS

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
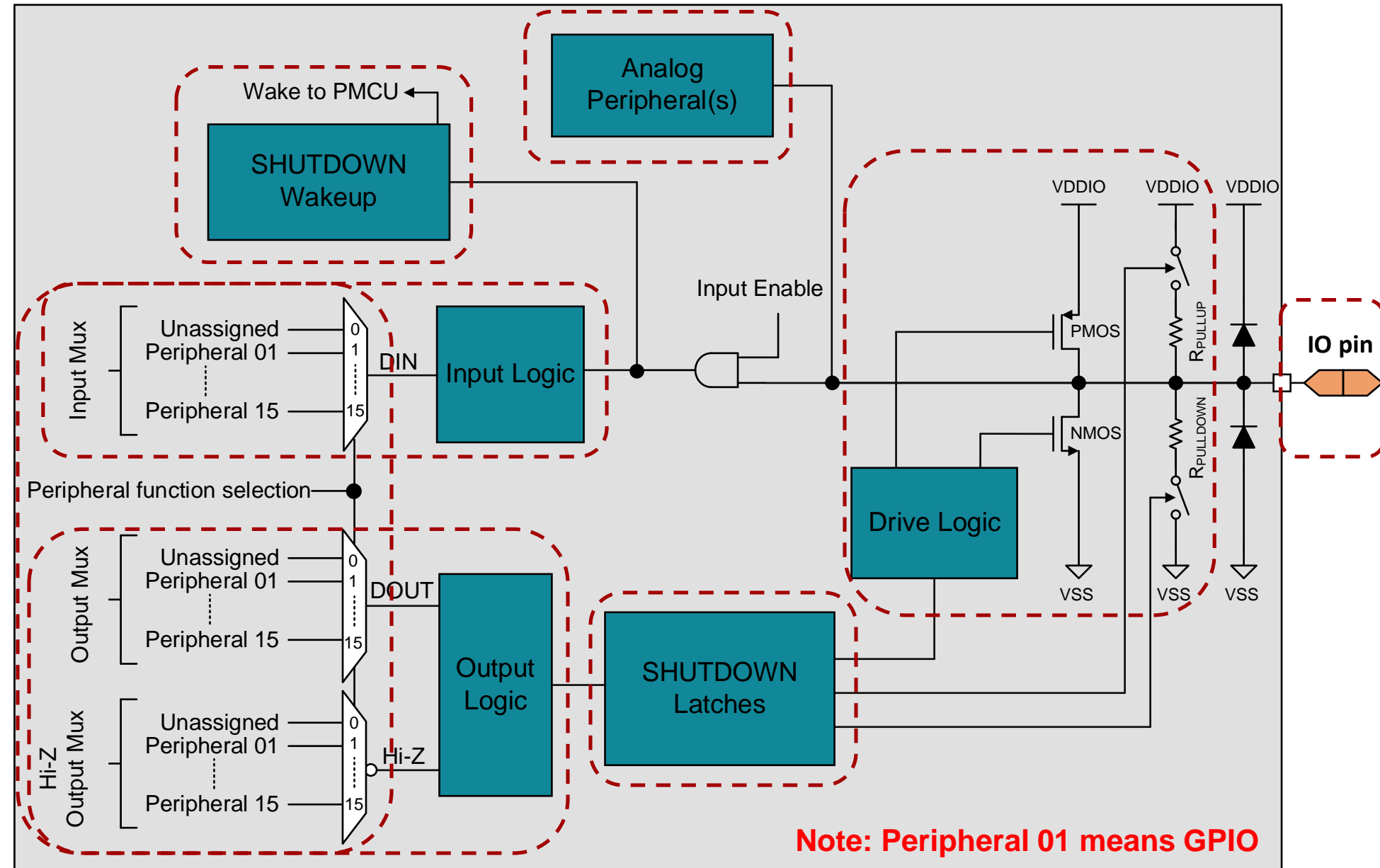
Digital IO Type can be found on device data sheet

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

MSPM0 I/O module introduction

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)

Note: Peripheral 01 means GPIO

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](#)
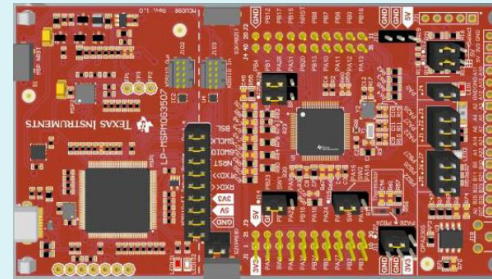[MSPM0 Sysconfig user's guide](#)

[MSPM0G350x datasheet](#)
[MSPM0L13xx datasheet](#)
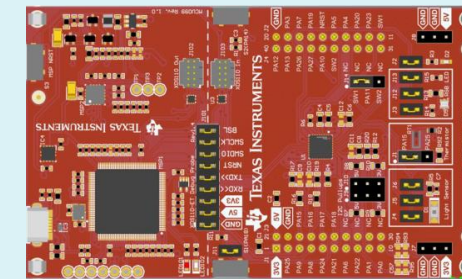[MSPM0Gxx technical reference manual](#)
[MSPM0Lxx technical reference manual](#)

Launchpad

LP-MSPM0G3507   LP-MSPM0L1306

Sysconfig Entrance for IOMUX Setting

Step1.

Step2:

To find more MSPM0 training series, please visit:

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

TEXAS INSTRUMENTS