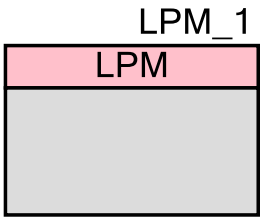
Low Power Modes (PDL_LPM)
1.0



Features

- Run modes
- Standby modes
  - Sleep modes
  - Timer modes
  - RTC mode
  - STOP mode
- Deep Standby modes

General Description

To reduce the power consumption, the system provides low power consumption mode. This enables the use of SLEEP, TIMER, RTC and STOP standby modes and deep standby RTC and deep standby STOP deep standby modes.

This component uses firmware drivers from the PDL_LPM module, which is automatically added to your project after a successful build.

When to Use a PDL_LPM Component

Use the PDL_LPM component when you need to reduce power consumption of the microcontroller.

Quick Start

1. Drag a PDL_LPM component from the Component Catalog FMx/System/Low Power Modes folder onto your schematic. That placed instance takes the name LPM_1.
2. There is no need to open Configure dialog. This component doesn't provide any parameters.
3. Build the project to verify the correctness of your design. This will add the required PDL modules to the Workspace Explorer and generate configuration data for the LPM_1 instance.

4. In the *main.c* file, initialize the peripheral and start the application:

```
en_lpm_mode_t enMode = StbSleepMode;
boolean_t bIoRemain = 1;
Lpm_GoToStandByMode(enMode, bIoRemain);
```

5. Build and program the device.

Component Usage

After a successful build, firmware drivers from the PDL_LPM module, added to your project in the pdl/drivers/lpm folder. Pass the generated data structures to the associated PDL functions in your application initialization code to configure the peripheral.

Generated Data

Once the component is initialized, the application code should use the peripheral functions provided in the referenced PDL files. Refer to the PDL documentation for the list of provided API functions. To access this document, right-click on the component symbol on the schematic and choose "**Open API Documentation…**" option in the drop-down menu.

Preprocessor Macros

The LPM component generates the following preprocessor macro(s). Note that each macro is prefixed with the instance name of the component (e.g. "LPM_1").

Macro	Description
LPM_1_SetPinFunc_WKUP	Macro to configure wake up pin. Number of the wakeup pins may vary, it depends on used device. For Volans this pin macro won't generated, for Berrypecker can be generated 12 pins, for Crane devices can be generated 8 pins.

Data in RAM

The generated data may be placed in flash memory (const) or RAM. The former is the more memory-efficient choice if you do not wish to modify the configuration data at run-time. Under the Built-In tab of the Configure dialog set the parameter CONST_CONFIG to make your selection. The default option is to place the data in flash.

Code Examples and Application Notes

There are numerous code examples that include schematics and example code available online at the Cypress Code Examples web page.

Cypress also provides a number of application notes describing how FMx devices can be integrated into your design. You can access the Cypress Application Notes search web page at www.cypress.com/appnotes.

Resources

The PDL_LPM component uses the Low Power Modes (LPM) peripheral block.

References

- FM0+ Family of 32-bit ARM® Cortex®-M0+ Microcontrollers Peripheral Manuals
- Cypress FM0+ Family of 32-bit ARM® Cortex®-M0+ Microcontrollers

Component Errata

This section lists known problems with the component.

Cypress ID	Component Version	Problem	Workaround
254396	1.0	LPM is not supported on S6E1A devices. There is a defect in the LPM driver that prevents its use on S6E1A devices. The defect does not impact S6E1B or S6E1C devices.	None. Contact Cypress technical support (http://www.cypress.com/mycases) for possible firmware updates and help with implementing external interrupts on S6E1A devices.

Component Changes

This section lists the major changes in the component from the previous version.

Version	Description of Changes	Reason for Changes / Impact
1.0	Initial Version	

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