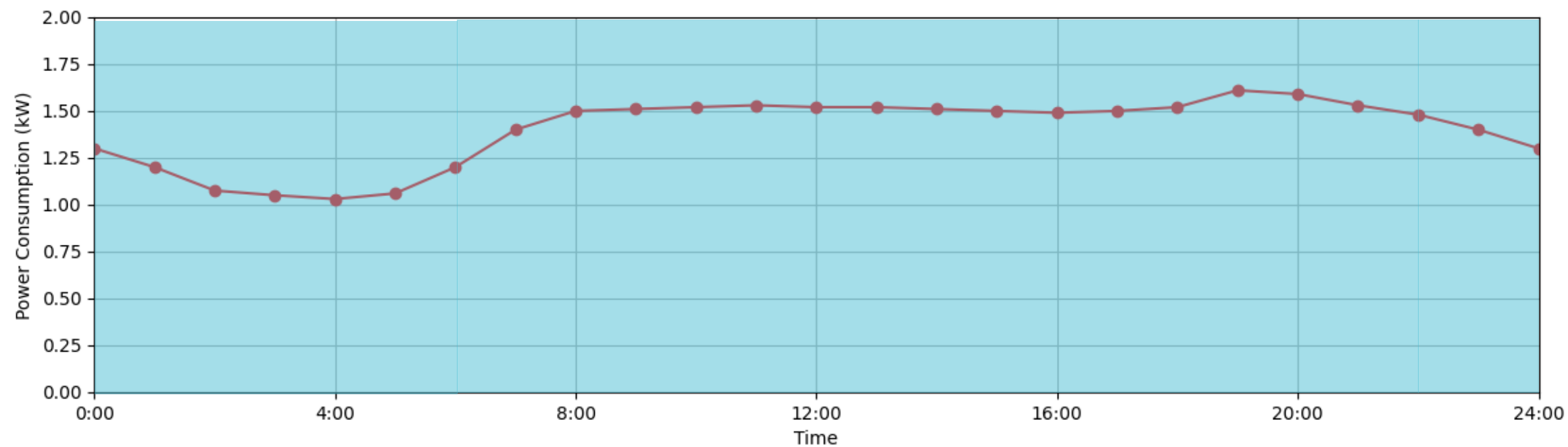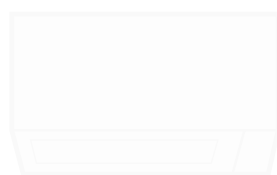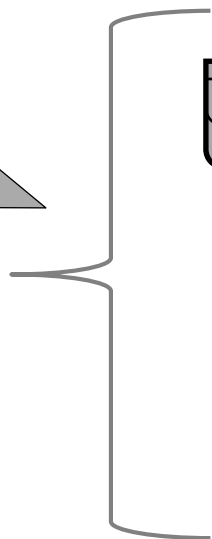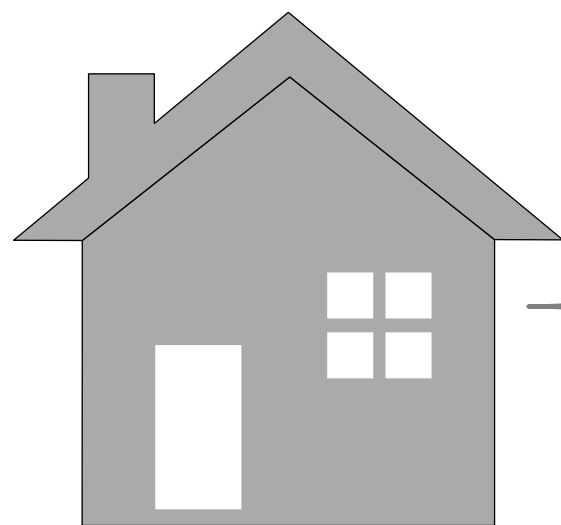# Introduction to MCU Power Modes

TI Precision Labs – Microcontrollers
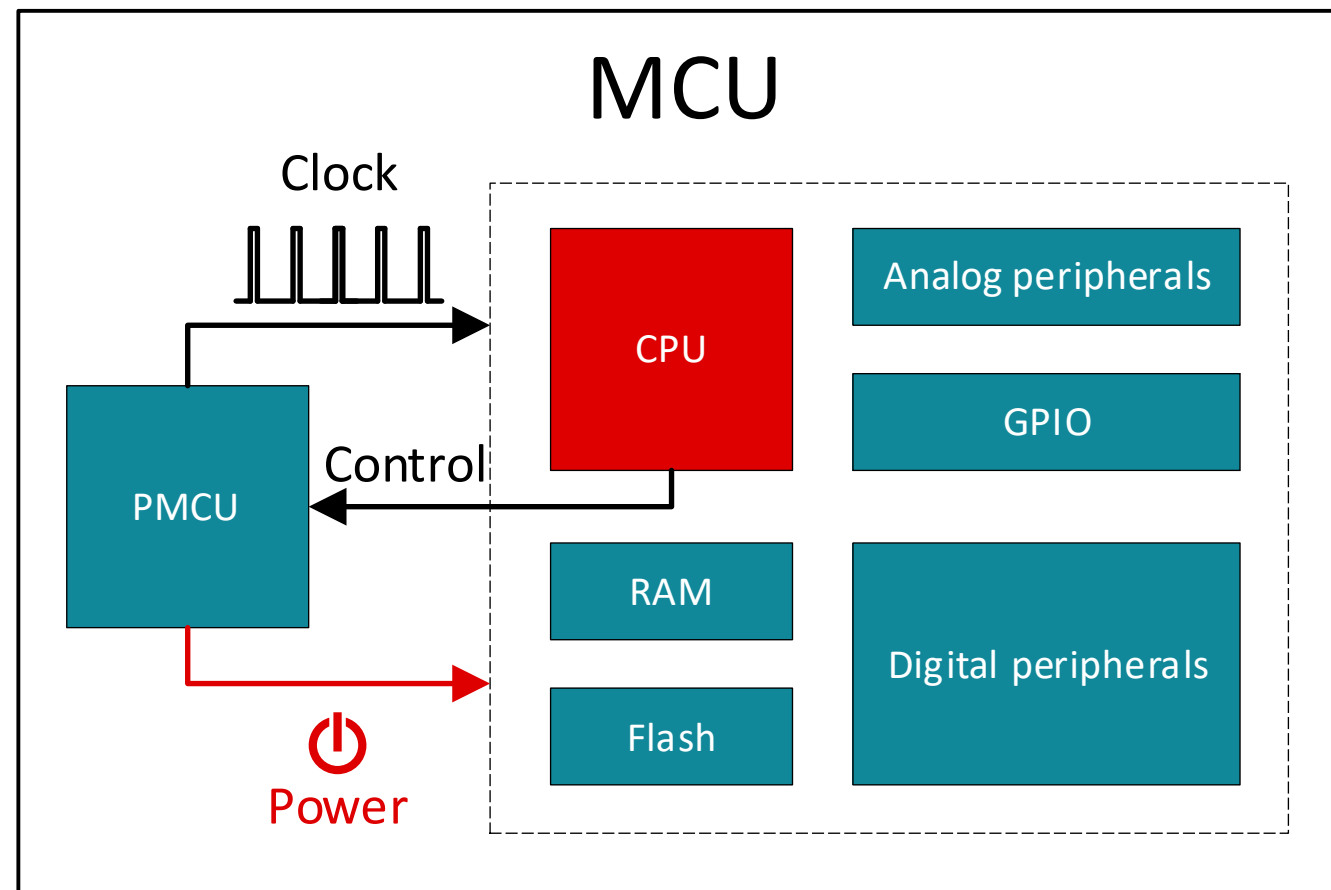
Presented by Amruta Deole

Prepared by Eason Zhou

What is a power mode?

What is an MCU power mode?

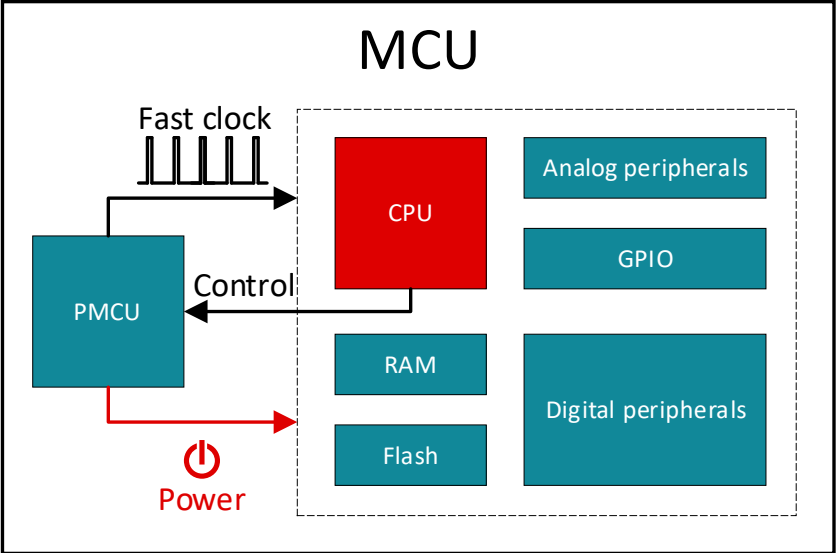- They are different power consumption levels of MCU by controlling the clock and power supply.
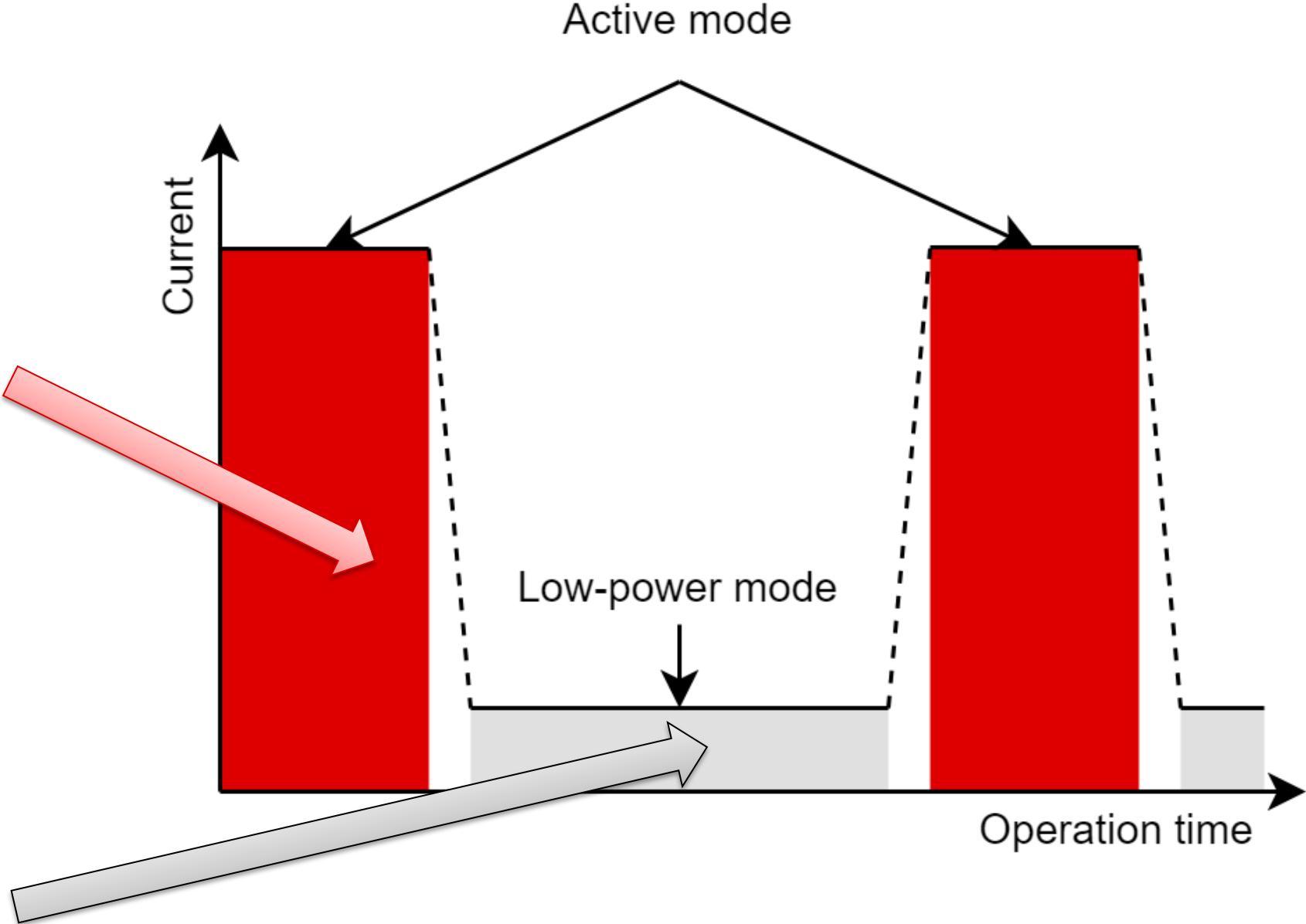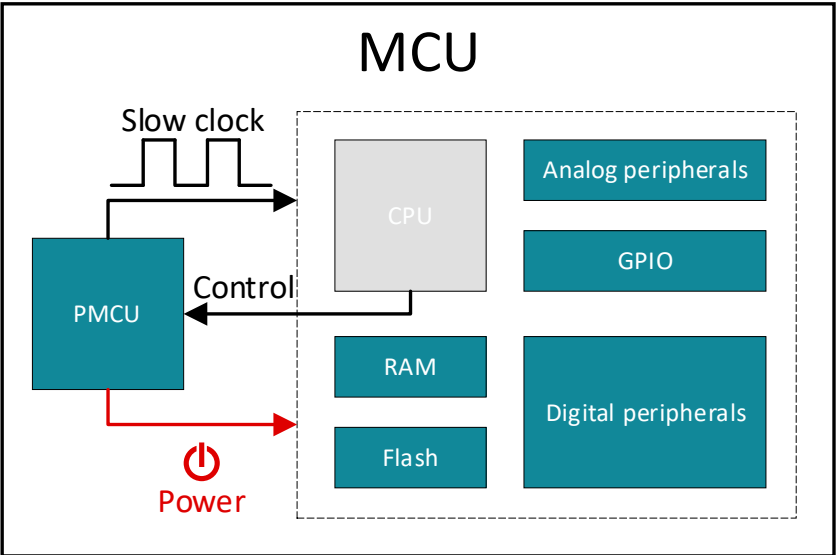
Power mode usage

- ## Active mode:

MCU

Fast clock

PMCU

Control

Power

CPU

Analog peripherals

GPIO

RAM

Digital peripherals

Flash

- ## Low-power mode:

MCU

Slow clock

PMCU

Control

Power

CPU

Analog peripherals

GPIO

RAM

Digital peripherals

Flash

Active mode

Current

Active mode

Low-power mode

Low-power mode

Operation time

TEXAS INSTRUMENTS
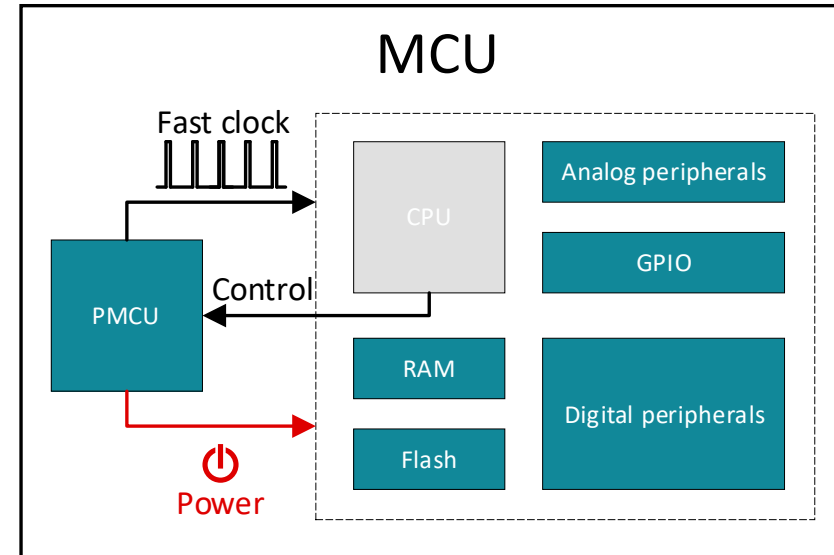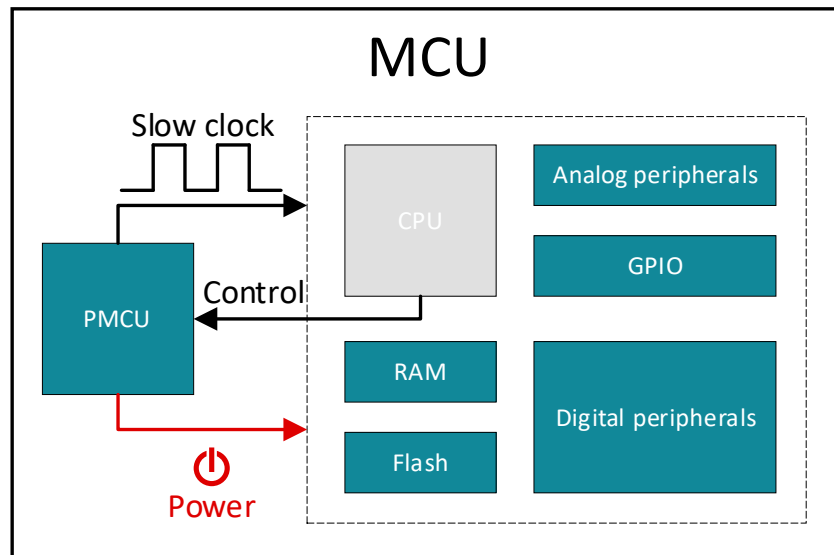
Some common power modes
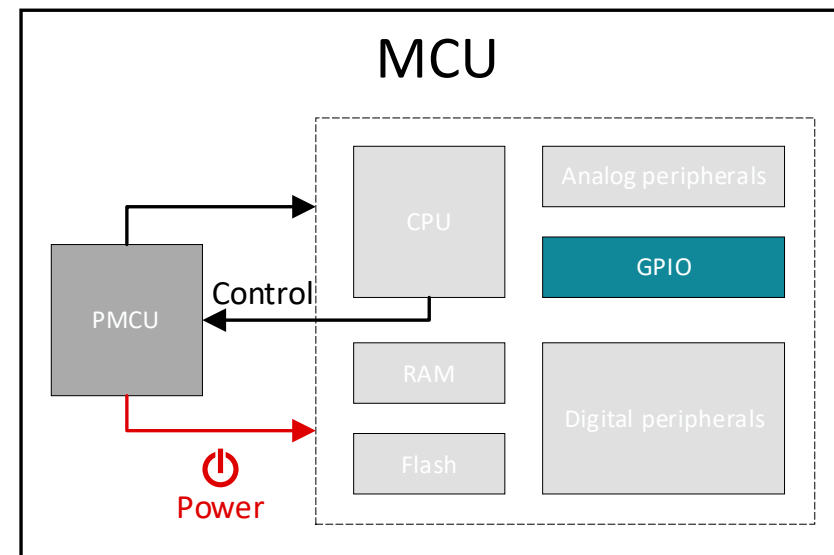
- Run mode (mA level):
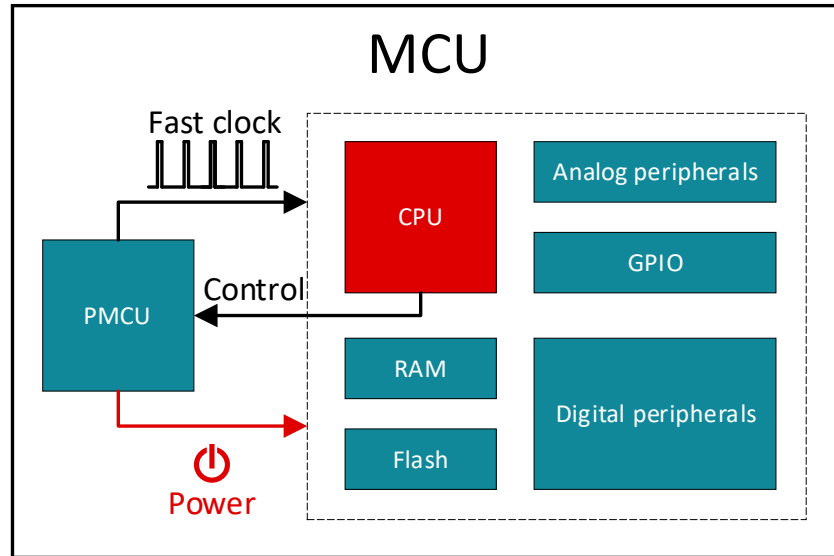
- Stop mode (100uA level):

- Standby mode (uA level):

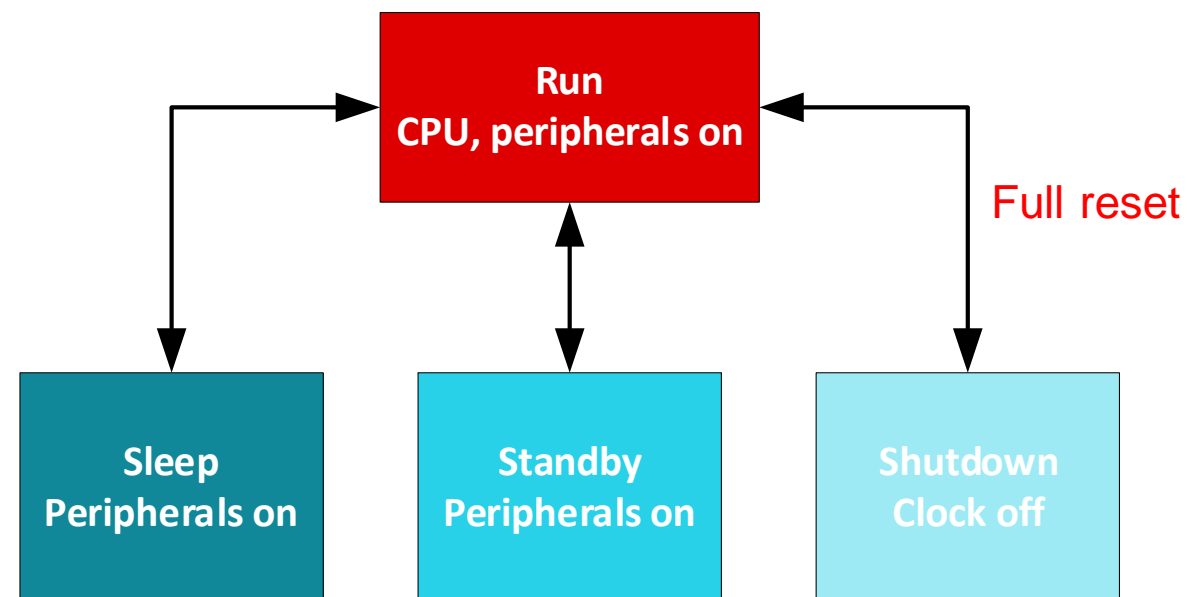
- Shutdown mode (uA level or lower):

Switching between power modes

Low-power mode	Enter method	Exit method	Wake-up time
Sleep	CPU control	Peripherals trigger	Low
Standby	CPU control	Peripherals trigger	Middle
Shutdown	CPU control	GPIO trigger	Long

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