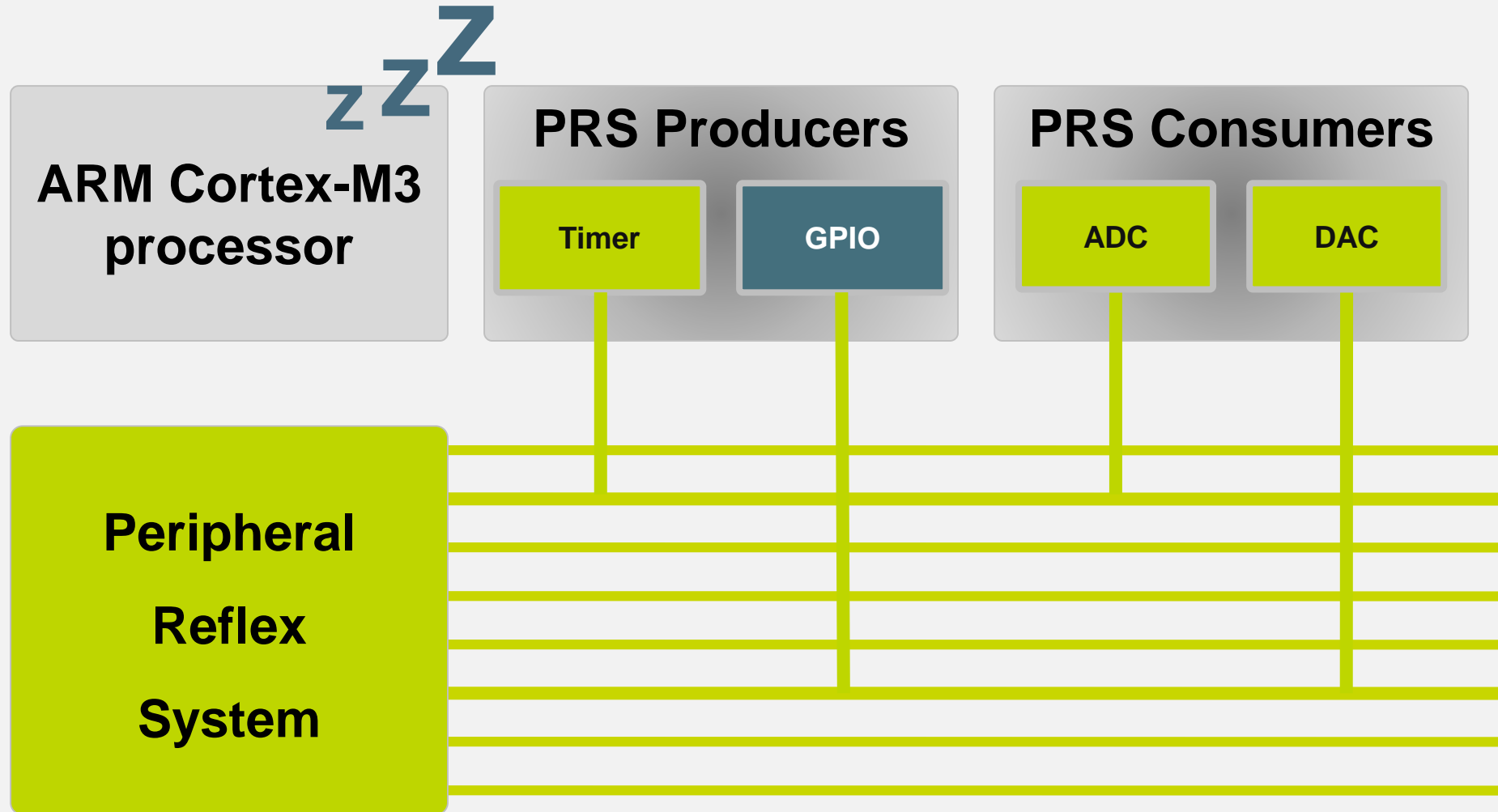




## EFM32 Series 0: Peripheral Reflex System (PRS)



# Peripheral Reflex System



## Peripherals With PRS Support

### Reflex Producers

- ACMP
- ADC
- DAC
- GPIO
- RTC
- BURTC
- TIMER
- LETIMER
- LESENSE
- UART
- USART
- USB
- VCMP

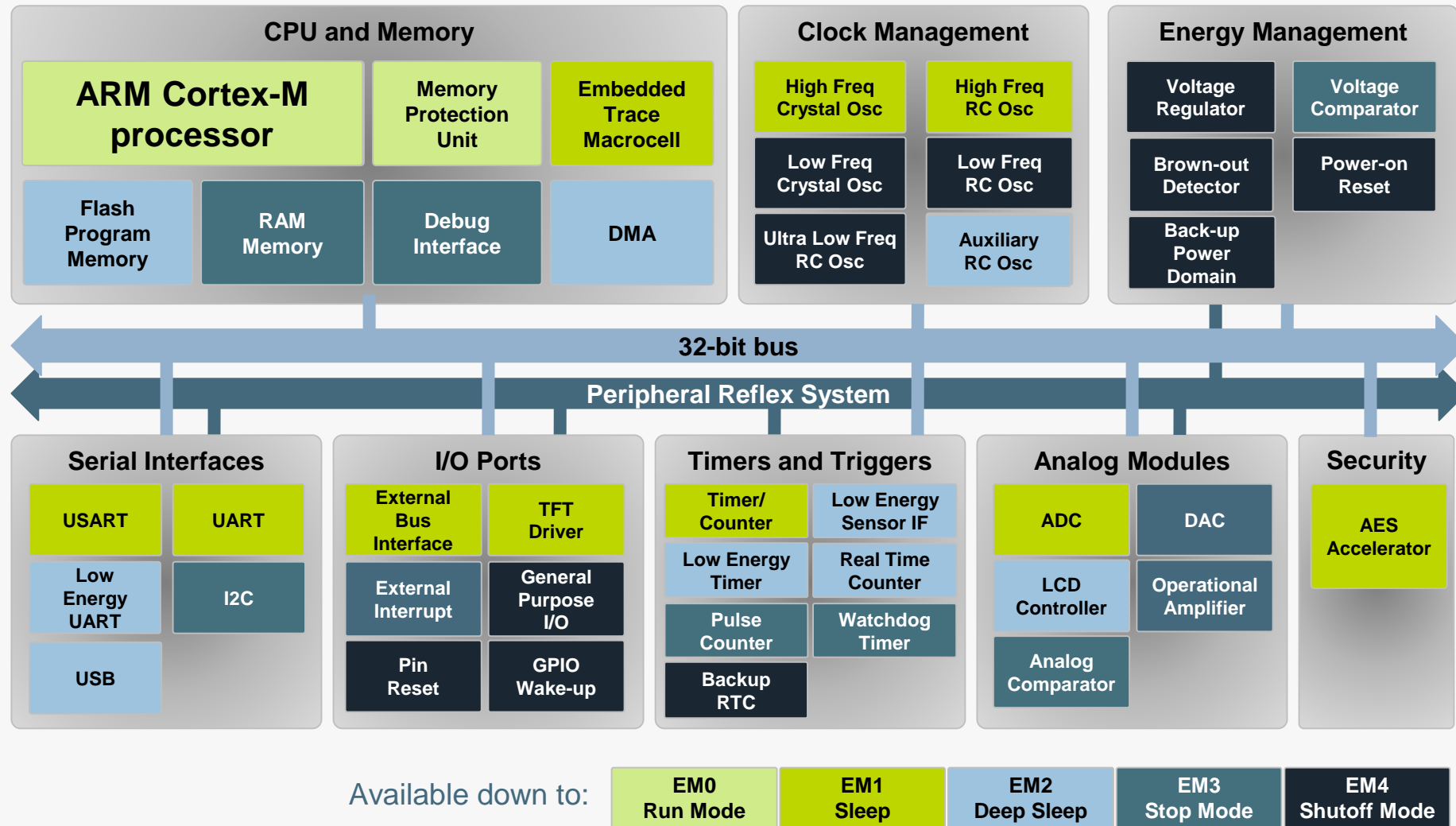
Reflex signals



### Reflex Consumers

- ADC
- DAC
- TIMER
- LESENSE
- UART
- USART
- PCNT

# PRS and Energy Modes



## PRS API in *emlib*

### ➤ Use *emlib* API functions to configure PRS:

- 1) Configure producer as normal

```
/* Configure TIMER */
TIMER_Init_TypeDef timerInit = TIMER_INIT_DEFAULT;
TIMER_Init(TIMER0, &timerInit);
```

- 2) Configure PRS channel

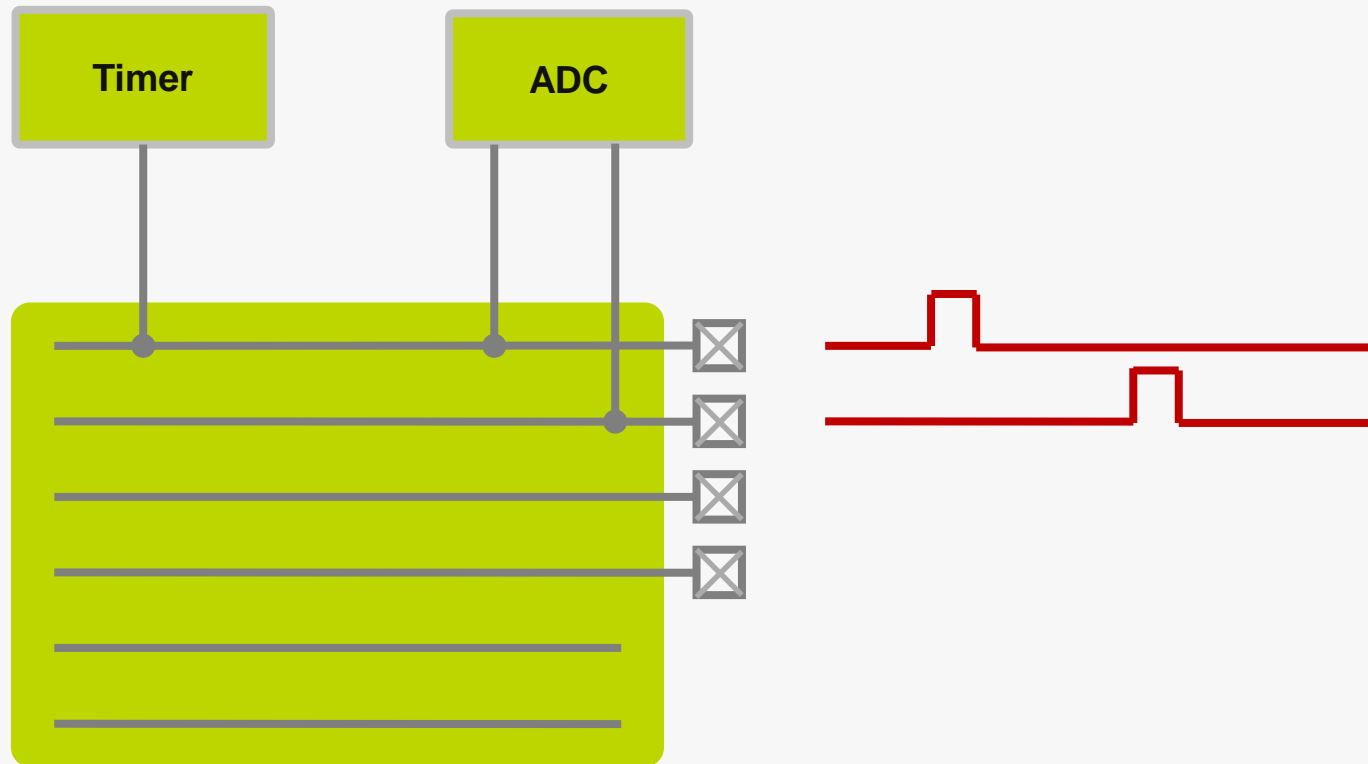
```
/* PRS setup: Select ACMP as source and ACMP0OUT
   (ACMP0 OUTPUT) as signal */
PRS_SourceSignalSet(5,
                    PRS_CH_CTRL_SOURCESEL_ACMP0,
                    PRS_CH_CTRL_SIGSEL_ACMP0OUT,
                    prsEdgeOff);
```

- 3) C

```
/* Configure ADC */
ADC_InitSingle_TypeDef singleInit = ADC_INITSINGLE_DEFAULT;
singleInit.prsEnable = true; /* Enable PRS for ADC */
ADC_InitSingle(ADC0, &singleInit);
```

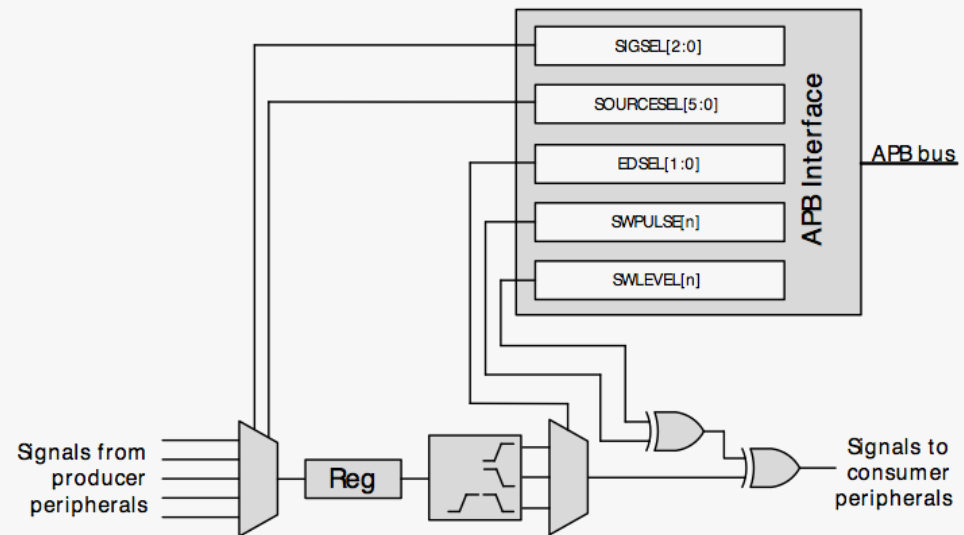
## PRS on external pins

- PRS channels 0-3 can be routed to external pins
- Useful when debugging autonomous peripherals

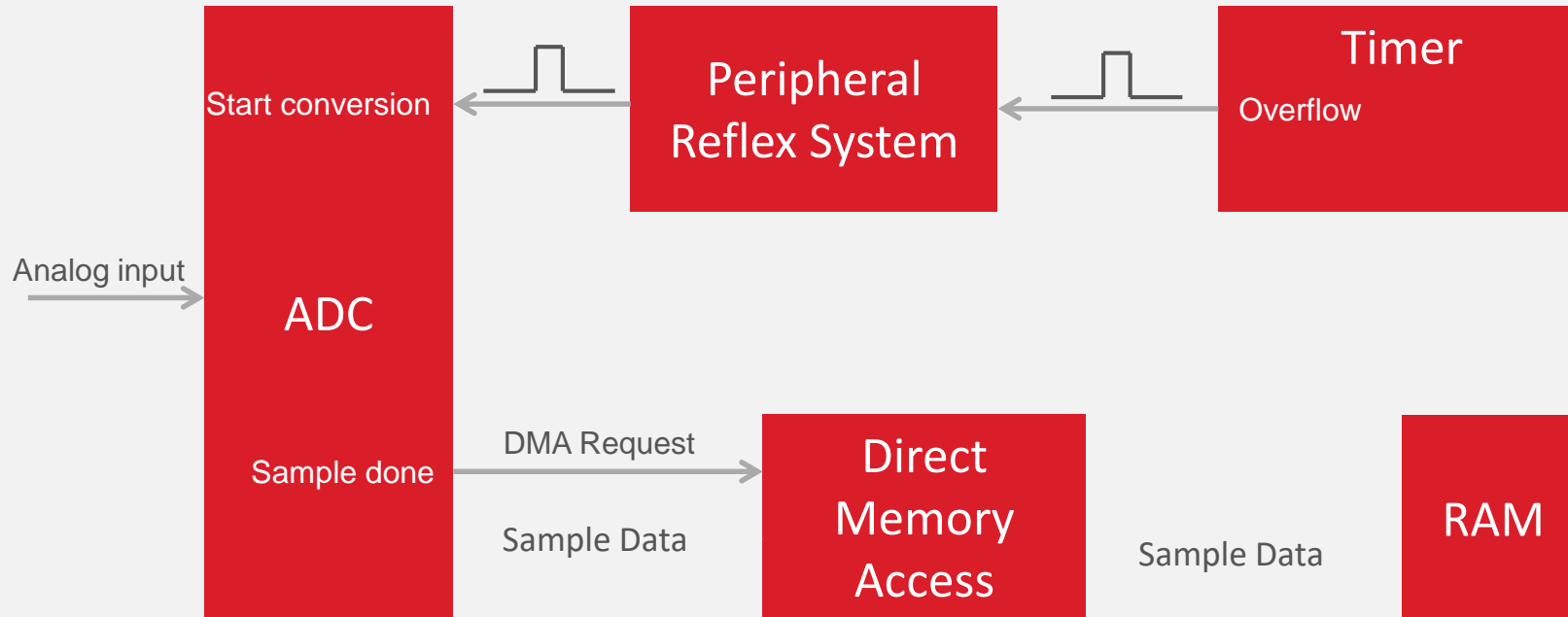


# PRS Advanced Features

- Asynchronous reflexes
  - Operates without clock => EM2/EM3
  - Producer & consumer must support async mode
  - Not available on Gecko
- Signal types
  - Pulse
  - Level
- Edge detector
  - Generates pulse from level
  - Synchronous mode only



## Example: ADC samples to RAM



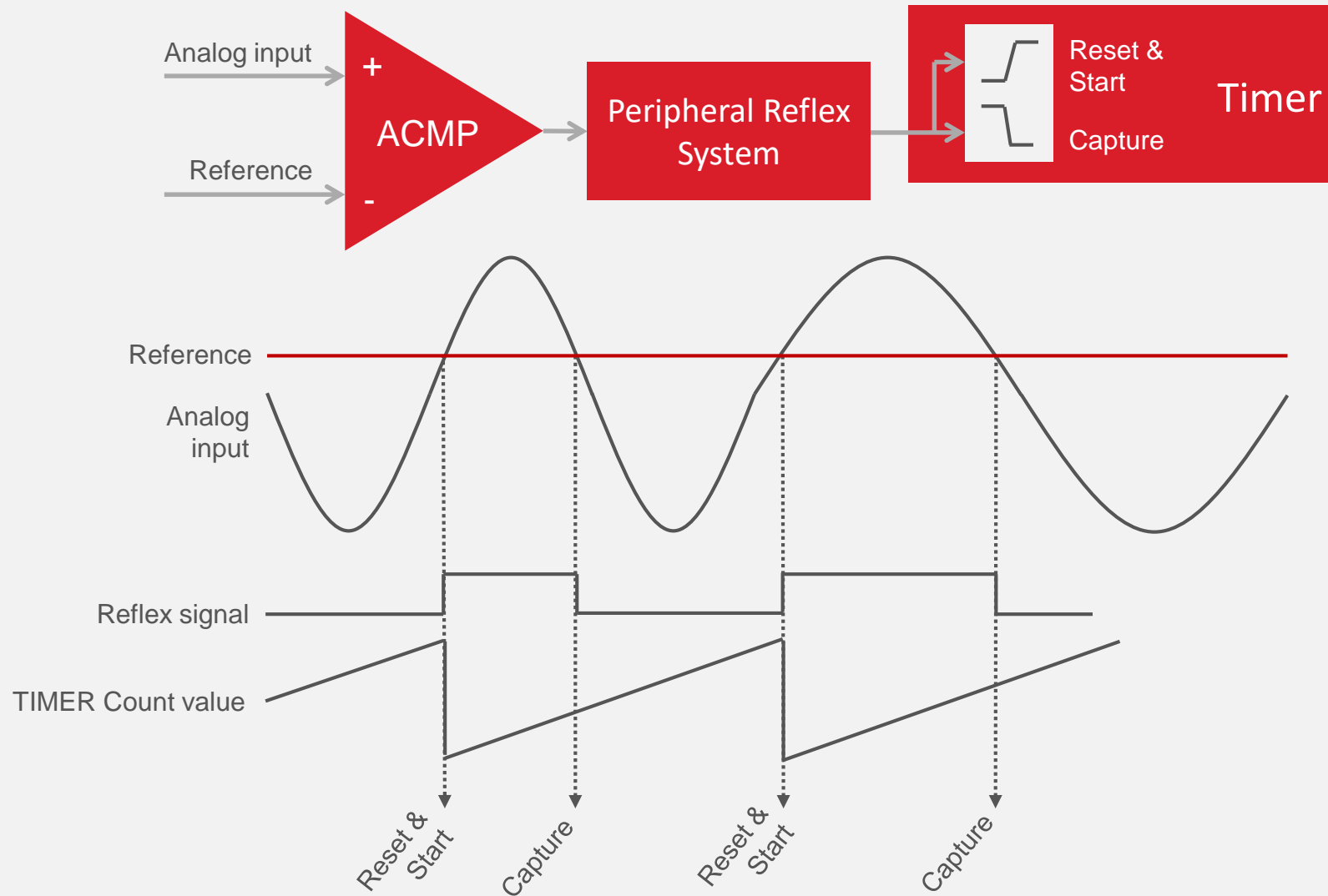
### ➤ SW Examples:

➤ AN0021 Analog to Digital Converter

➤ AN0013 Direct Memory Access



# Example: Pulse width measurement



## ➤ SW Example: AN0025 Peripheral Reflex System



[www.silabs.com/efm32](http://www.silabs.com/efm32)

