

STM32 OBSŁUGA ENKODERA INKREMENTALNEGO

KONFIGURACJA STM32CUBEMX

W przykładzie: STM32F103C8T6, użycie TIMERA2, enkoder na pinach PA0, PA1

TIM2 Mode and Configuration

Mode

| | |
|-------------------|--------------|
| Slave Mode | Disable |
| Trigger Source | Disable |
| Clock Source | Disable |
| Channel1 | Disable |
| Channel2 | Disable |
| Channel3 | Disable |
| Channel4 | Disable |
| Combined Channels | Encoder Mode |

Use ETR as Clearing Source

XOR activation

One Pulse Mode

NVIC Settings DMA Settings GPIO Settings

Parameter Settings User Constants

Configure the below parameters :

Search (Ctrl+F)

Counter Settings

| | |
|---|-------------|
| Prescaler (PSC - 16 bits value) | 0 |
| Counter Mode | Up |
| Counter Period (AutoReload Register - 16 bit) | 1000 |
| Internal Clock Division (CKD) | No Division |
| auto-reload preload | Disable |

Trigger Output (TRGO) Parameters

| | |
|-----------------------------|--|
| Master/Slave Mode (MSM bit) | Disable (Trigger input effect not delayed) |
| Trigger Event Selection | Reset (UG bit from TIMx_EGR) |

Encoder

| | |
|--------------------------|--------------------------|
| Encoder Mode | Encoder Mode TI1 and TI2 |
| Parameters for Channel 1 | |
| Polarity | Rising Edge |
| IC Selection | Direct |
| Prescaler Division Ratio | No division |
| Input Filter | 15 |
| Parameters for Channel 2 | |
| Polarity | Rising Edge |
| IC Selection | Direct |
| Prescaler Division Ratio | No division |
| Input Filter | 15 |

| NVIC Settings | | DMA Settings | | GPIO Settings | | | |
|--------------------|---------------|----------------|----------------|---------------|--------------|------------|-------------------------------------|
| Parameter Settings | | | User Constants | | | | |
| Pin Na... | Signal on Pin | GPIO output... | GPIO mode | GPIO Pull-u | Maximum o... | User Label | Modified |
| PA0-WKUP | TIM2_CH1 | n/a | Input mode | Pull-up | n/a | | <input checked="" type="checkbox"/> |
| PA1 | TIM2_CH2 | n/a | Input mode | Pull-up | n/a | | <input checked="" type="checkbox"/> |

ZMIANY W KODZIE PROGRAMU (MAIN.C):

PRZED GŁÓWNĄ PĘTLĄ

```
/* USER CODE BEGIN 2 */  
HAL_TIM_Encoder_Start(&htim2, TIM_CHANNEL_ALL);  
/* USER CODE END 2 */
```

W PĘTLI GŁÓWNEJ, ODCZYT WARTOŚCI ENKODERA:

```
uint32_t enc = TIM2->CNT;
```

Wartości uzyskiwane będą z przedziału 0 – [Counter Period] – w naszym przypadku 0 – 1000 włącznie. Po przekroczeniu wartości 1000 licznik zaczyna zliczać dalej od zera.

Nie trzeba uruchamiać przerw, ani wykonywać dodatkowych konfiguracji.