

AT32F4xx_DMA Flexible Mapping Function

Introduction

This sample code demonstrates how to use DMA flexible map function of AT32F4xx series.

Note: This sample code is written based on Artery's V2.x.x BSP. For other versions of BSP, users should pay attention to the differences in use.

Applicable products:

Product series	AT32F403Axx
	AT32F407xx
	AT32F413xx
	AT32F415 xx
	AT32F435 xx
	AT32F437 xx

List of major peripherals used:

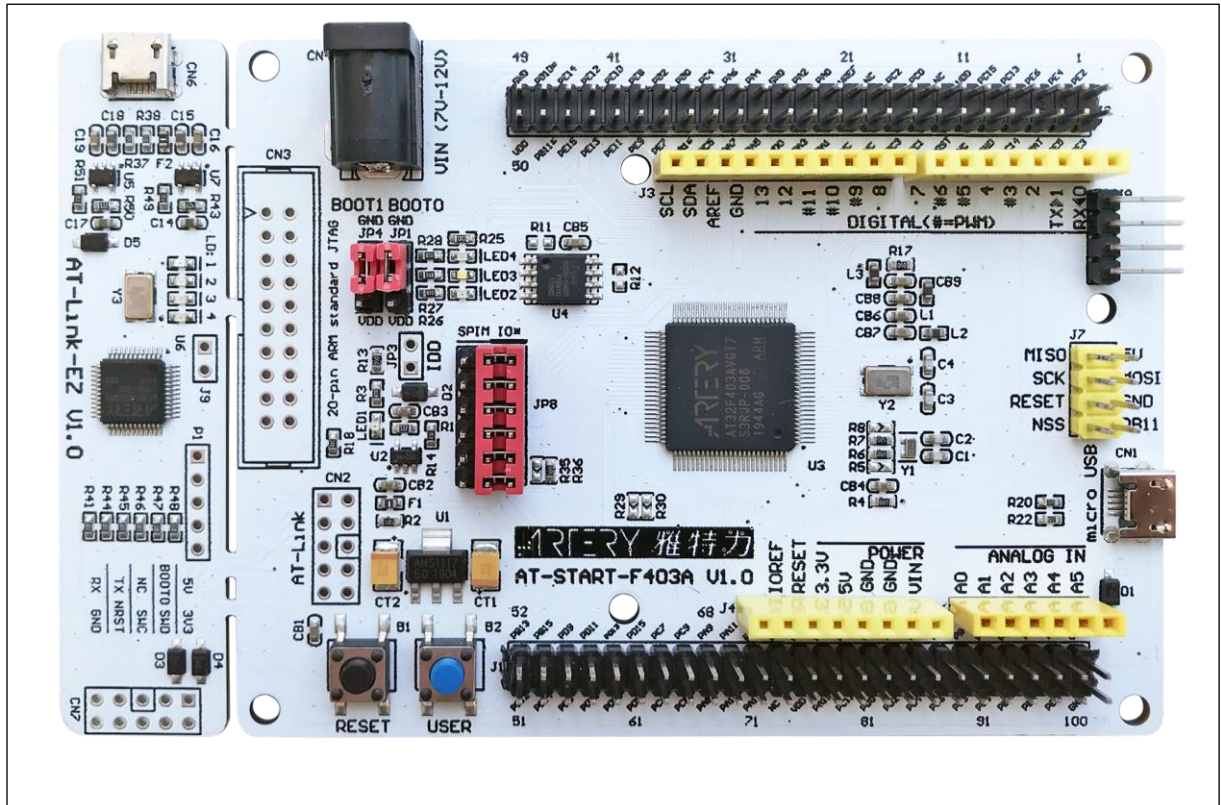
Peripherals	TMR
	GPIO
	DMA

1 Quick start

1.1 Hardware resources

- 1) AT-START-F403A V1.0 evaluation board (use evaluation board corresponding to specific product series)

Figure 1. AT-START-F403A V1.0 evaluation board



1.2 Software resources

- 1) SourceCode
 - data_to_gpio_flexible

Note: All of projects are built based on Keil 5. For the need to run them in other compiling environments, user can make simple adjustments according to AT32xxx_Firmware_Library_V2.x.x\project\at_start_xxx\templates.

1.3 Example case

- 1) Open “data_to_gpio_flexible” source code, compile and download it to the evaluation board
- 2) As AT-START-F403A V1.0 is used in the example, we choose AT32F403A project here
- 3) DMA flexible mapping function is not accessible to all AT32 series. It supports AT32F403A, AT32F407, AT32F413, AT32F415, AT32F435 and AT32F437.
- 4) In the example, DMA request is generated from an overflow even on TMR2. With DMA, SRAM data is transferred to GPIOC port
- 5) For DMA fixed mapping mode, DMA request is generated on a fixed certain channel upon an overflow event of TMR2. But in DMA flexible mapping mode, any DMA channel can be used to

generate a DMA request, as shown below:

Figure 2. Example code

```
/* tmr2 flexible function enable */  
dma_flexible_config(DMA2, FLEX_CHANNEL1, DMA_FLEXIBLE_TMR2_OVERFLOW);  
  
/* enable dma channel */  
dma_channel_enable(DMA2_CHANNEL1, TRUE);
```

- 6) Download program, and capture waveforms of PA8.

2 Revision history

Table 1. Document revision history

Date	Revision	Changes
2021.12.07	2.0.0	Initial release

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