

AT32F4xx TMR Captures External Signals With DMA

Introduction

This sample code demonstrates how to use DMA for capturing external signals by AT32F4xx TMR.

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	AT32Fxx series
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List of major peripherals used:

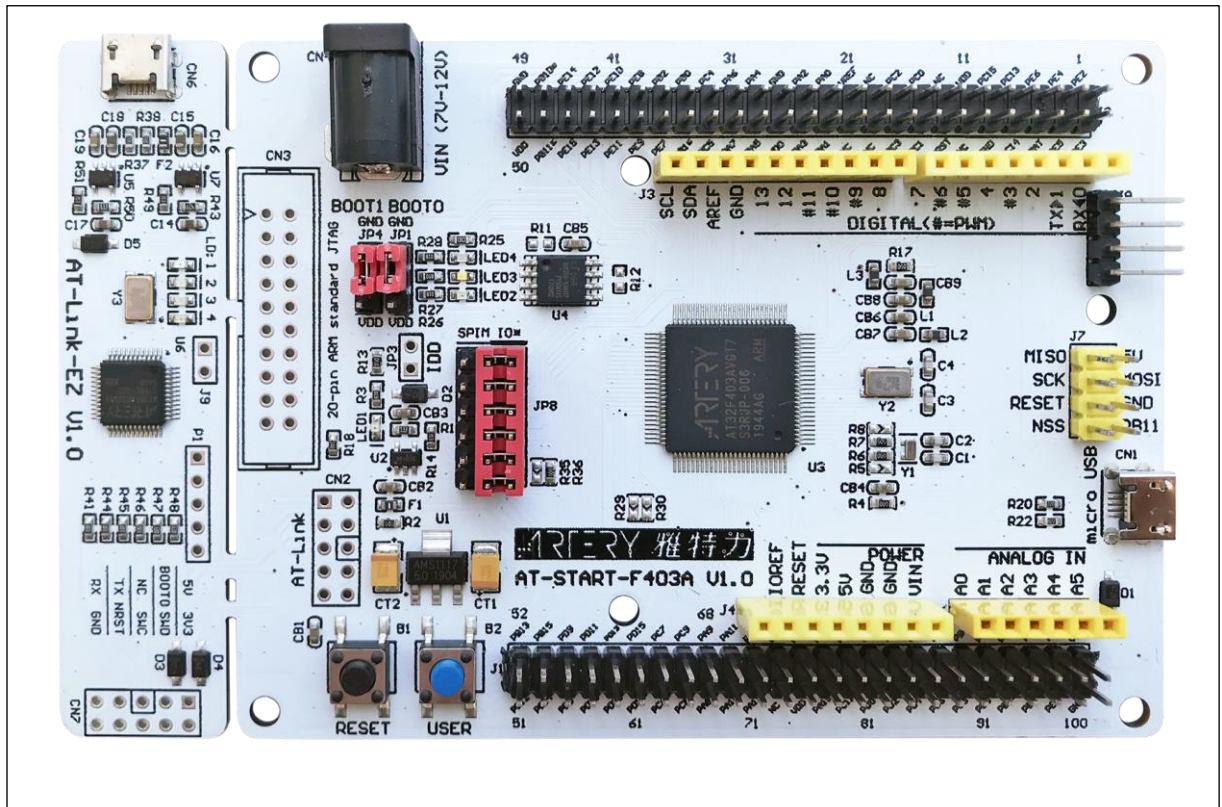
Peripherals	TMR
	DMA
	GPIO

1 Quick start

1.1 Hardware resources

- 1) AT-START-F403A V1.0 evaluation board (use evaluation board corresponding to specific product series)
- 2) Serial interface: PA9

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



1.2 Software resources

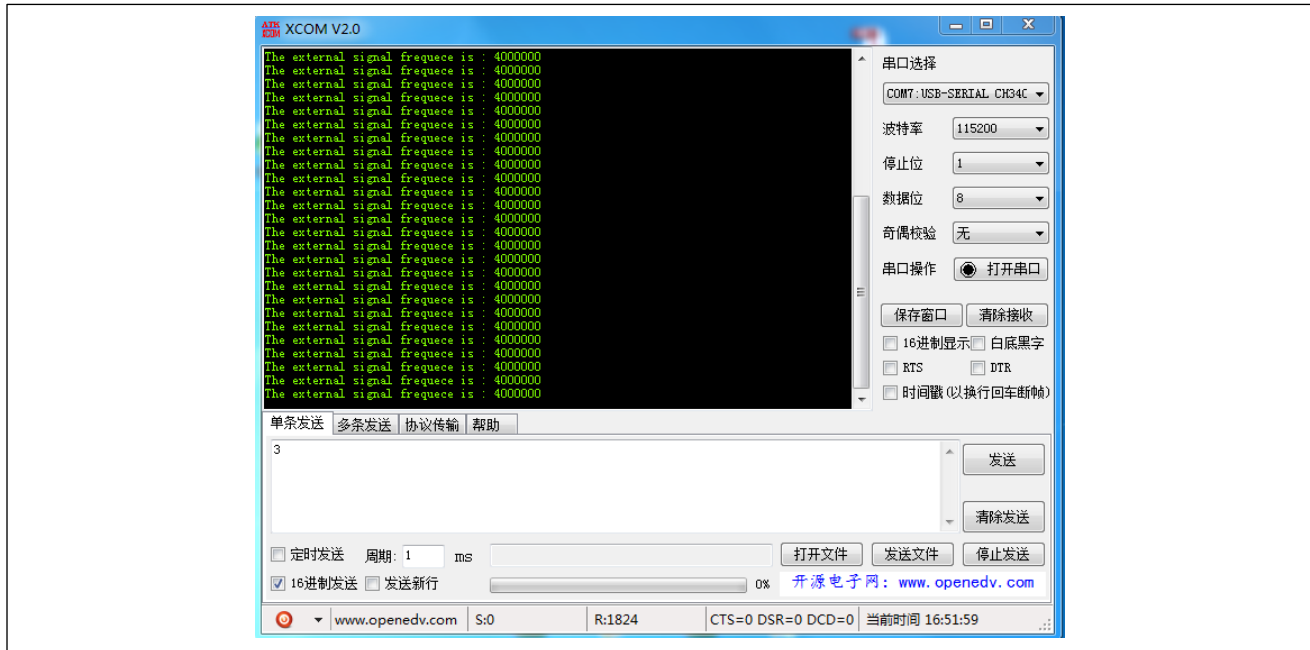
- 1) SourceCode
 - pwm_input_dma

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 “pwm_input_dma” source code, compile and download it to the evaluation board
- 2) Here we use AT-START-F403A V1.0 board, so we choose AT32F403A project
Inject external PWM signals into PA8 port, and print out the captured signal frequency via PA9.
This method is very useful for capturing high-frequency signals because of lower errors; but for low-frequency signals, there is a need to change division factors of TMR, which may introduce inevitable errors
- 3) Output 4 Mhz signals and view it via serial interface, as shown below.

Figure 2. View result



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
2021.12.06	2.0.0	Initial release

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