

AT32F4xx TMR 7-channel PWM Output

Introduction

This sample code demonstrates how to use TMR1 to simultaneously output 7-channel PWM

Applicable products:

Product series	AT32F4xx
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List of major peripherals used:

Peripherals	TMR
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1 Quick start

1.1 Hardware resources

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

1.2 Software resources

- This demo is written based on AT32F403A, and BSP version AT32F403A_407_Firmware_Library_V2.x.x
- This demo demonstrates how to configure TMR1 peripheral to generate seven PWM signals at a frequency of 17.57 KHz, with four different duty cycles, namely 50%, 37.5%, 25% and 12.5% for channel 1, 2, 3 and 4 respectively.

- Calculation format for TMR1_Period value:

$\text{TMR1_Period} = (\text{system clock} / 17570) - 1;$

- Calculation format for TMR1_Pulse value:

$\text{TMR1_Pulse} = \text{duty cycle} * (\text{TMR1_Period} - 1) / 100$

- TIM1 waveforms can be displayed through an oscilloscope

1.3 Example case

- 1) Connect TMR1 output channel to oscilloscope or logic analyzer to view different waveforms.
The pins corresponding to TMR1 output channels are as follows:
- 2) TMR1_CH1 pin (PA.08)
- 3) TMR1_CH1C pin (PB.13)
- 4) TMR1_CH2 pin (PA.09)
- 5) TMR1_CH2C pin (PB.14)
- 6) TMR1_CH3 pin (PA.10)
- 7) TMR1_CH3C pin (PB.15)
- 8) TMR1_CH4 pin (PA.11)

2 Revision history

Table 1. Document revision history

Date	Revision	Changes
2021.12.02	2.0.0	Initial release

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