

AT32Fxx Series ADC Internal Temperature Sensor

Introduction

This sample code demonstrates how to use ADC internal temperature sensor in AT32 series MCUs

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:

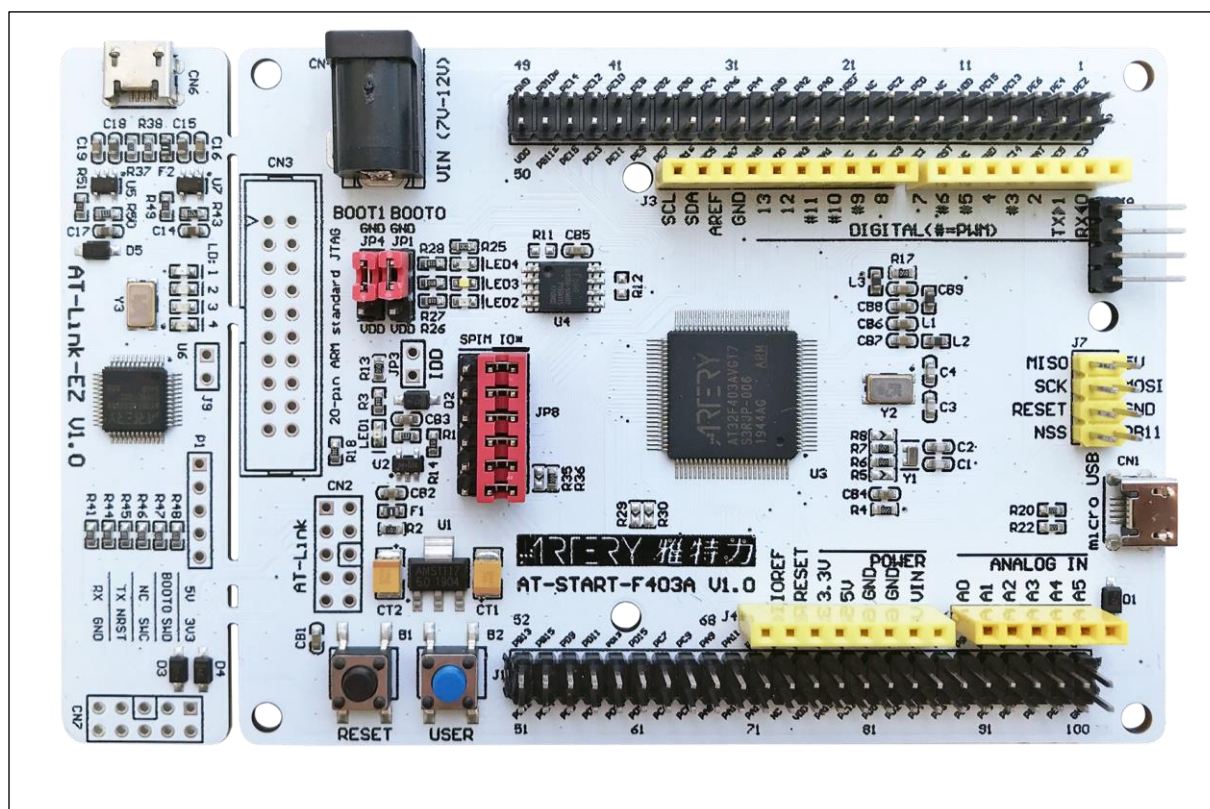
Peripherals	ADC
	DMA

1 Quick start

1.1 Hardware resources

- 1) AT-START-F403A V1.0 evaluation board (choose evaluation board based on specific product series)
- 2) Serial interfaces: PA9, PA10

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



1.2 Software resources

- 1) SourceCode
 - ADC_Temperature

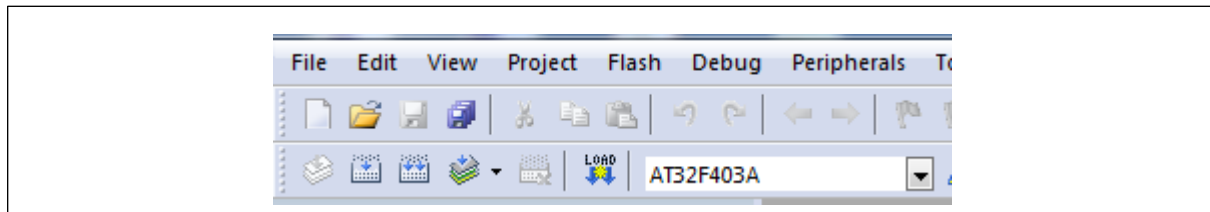
Note: All of projects are built based on Keil 5. For the need to run them in other compiling environments, user can make simple adjustments according to AT32xxx_Firmware_Library_V2.x.x\project\at_start_xxx\templates.

Note: The temperature sensor output voltage changes linearly with temperature. The offset of this linear function depends on each chip due to process variation (up to 45 °C from one chip to another). The internal temperature sensor is more suited for applications that detect temperature variations instead of absolute temperatures. If accurate temperature reading is required, an external temperature sensor should be used.

1.3 Example case

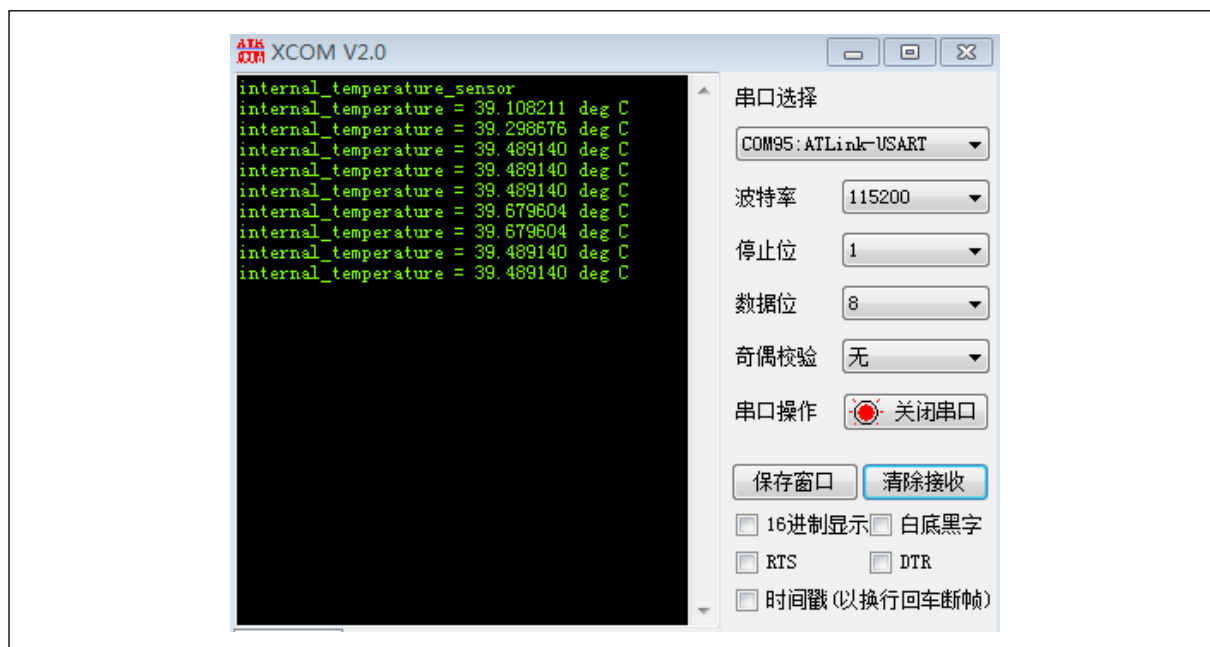
- 1) Open “ADC_Temperature” source code, compile and download it to the evaluation board
- 2) As AT-START-F403A V1.0 is used in this example, we choose AT32F403A project here

Figure 2. Keil project selection



- 3) View temperature data via a serial interface assistant

Figure 3. View results



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
2021.12.02	2.0.0	Initial release

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