

QSPI and I²C to Drive LCD Screen

Introduction

This sample code demonstrates how to use QSPI interface to drive LED, and I²C to drive touch module.

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	AT32F435 series
	AT32F437 series

List of major peripherals used:

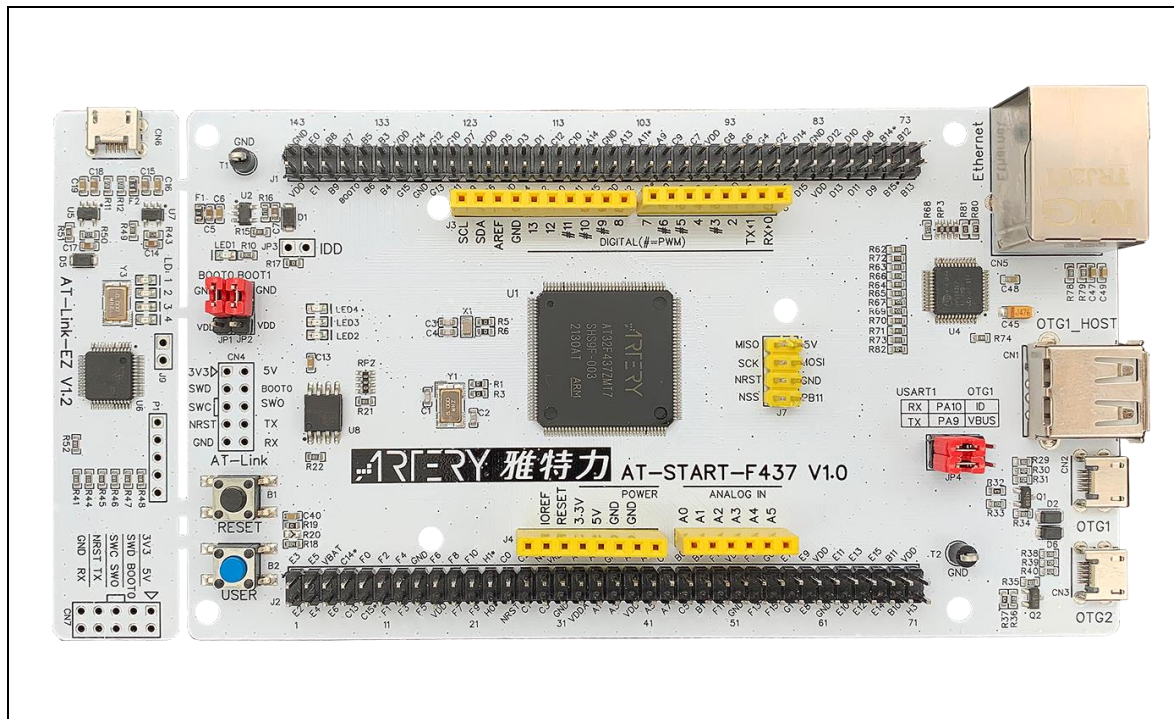
Peripherals	QSPI
	I ² C

1 Quick start

1.1 Hardware resources

- 1) AT-START-F437 V1.x evaluation board

Figure 1. AT-START-F437 V1.0 evaluation board



- 1) HUAXIA touch screen (LCD chip GC9B71, touch chip CST816D) and appropriate sockets (need to be purchased separately)

Figure 2. Touch screen



1.2 Software resources

- 1) This Demo is built upon AT32F437, and BSP version AT32F435_437_Firmware_Library_V2.1.2
- 2) QSPI drives LCD to demonstrate pre-defined pictures in order
- 3) I²C drives touch function. The screen is touchable and Graffiti-capable.

Note: All of projects are built based on Keil 5. For the need to run 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

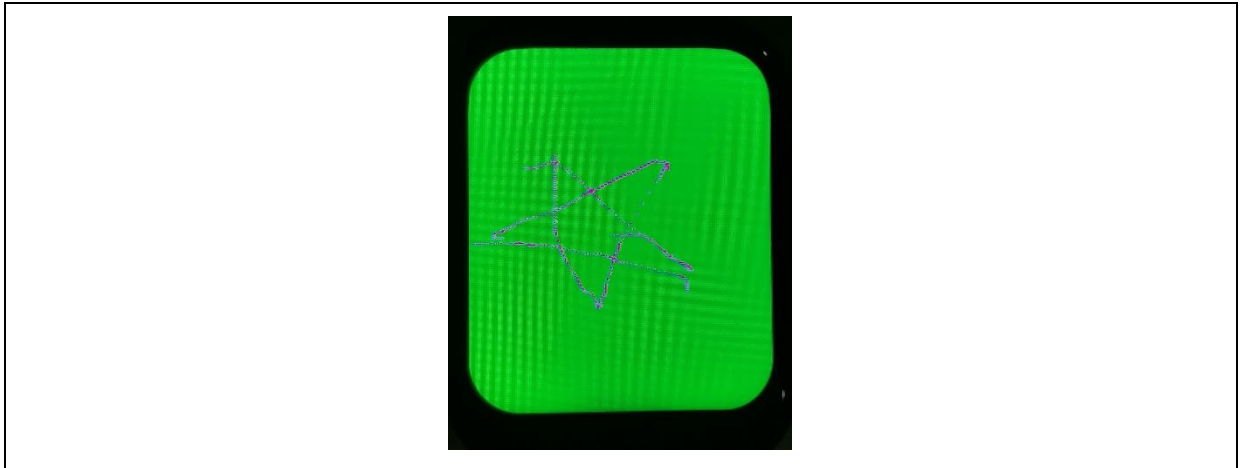
- 1) Connect LCD screen to AT-START evaluation board, according to readme.txt
- 2) Open SC0112_AT32F435_437_QSPI_LCD\SourceCode\utilities\qspi_lcd\mdk_v5 source code
- 3) Compile and download source code to the evaluation board. Now you can see that pictures are on display on LCD

Figure 3. Display pictures



- 4) After picture display, you can touch and draw on the screen.

Figure 4. Graffiti



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
2023.03.30	2.0.0	Initial release
2023.04.14	2.0.1	1. Updated the descriptions of section 1.3 source code 2. Changed the picture display coordinates in source code

IMPORTANT NOTICE – PLEASE READ CAREFULLY

Purchasers are solely responsible for the selection and use of ARTERY's products and services, and ARTERY assumes no liability whatsoever relating to the choice, selection or use of the ARTERY products and services described herein

No license, express or implied, to any intellectual property rights is granted under this document. If any part of this document deals with any third party products or services, it shall not be deemed a license granted by ARTERY for the use of such third party products or services, or any intellectual property contained therein, or considered as a warranty regarding the use in any manner of such third party products or services or any intellectual property contained therein.

Unless otherwise specified in ARTERY's terms and conditions of sale, ARTERY provides no warranties, express or implied, regarding the use and/or sale of ARTERY products, including but not limited to any implied warranties of merchantability, fitness for a particular purpose (and their equivalents under the laws of any jurisdiction), or infringement on any patent, copyright or other intellectual property right.

Purchasers hereby agree that ARTERY's products are not designed or authorized for use in: (A) any application with special requirements of safety such as life support and active implantable device, or system with functional safety requirements; (B) any aircraft application; (C) any aerospace application or environment; (D) any weapon application, and/or (E) or other uses where the failure of the device or product could result in personal injury, death, property damage. Purchasers' unauthorized use of them in the aforementioned applications, even if with a written notice, is solely at purchasers' risk, and Purchasers are solely responsible for meeting all legal and regulatory requirements in such use.

Resale of ARTERY products with provisions different from the statements and/or technical characteristics stated in this document shall immediately void any warranty grant by ARTERY for ARTERY's products or services described herein and shall not create or expand any liability of ARTERY in any manner whatsoever.

© 2023 Artery Technology -All rights reserved