

AT32F4xx external spiflash virtual disk

Introduction

This sample code provide the demo of usb external spiflash virtual disk, which can be applied to other series in a similar way.

Note: The corresponding code in this application note is developed on the basis of V2.x.x BSP provided by Artery. For other versions of BSP, please pay attention to the differences in usage.

Applicable products:

Part number	AT32F415xx
	AT32F435xx
	AT32F437xx
	AT32F425xx

List of peripherals:

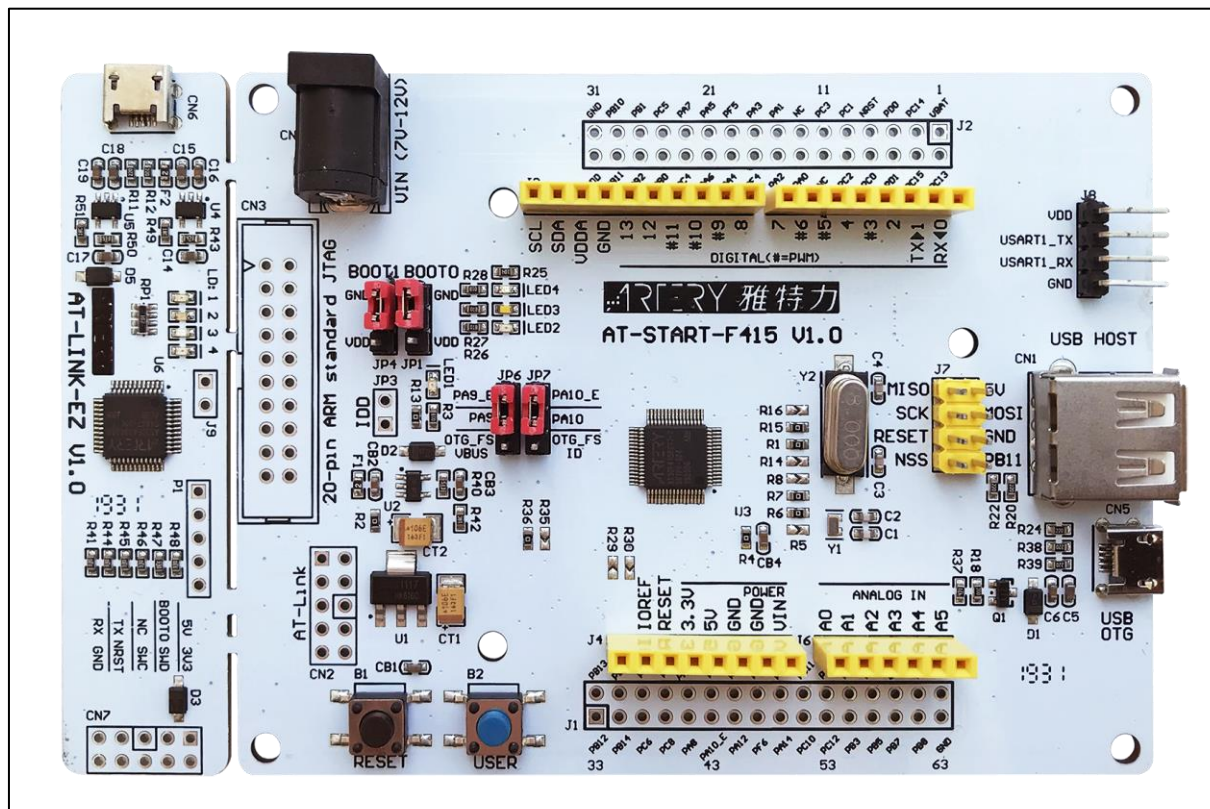
Main peripheral	OTG_device
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1 Quick start

1.1 Hardware requirements

- 1) AT-START-F415 V1.0 evaluation board (or the corresponding evaluation board of other series)

Figure 1. AT-START-F415 V1.0 evaluation board



1.2 Software requirements

- 1) SourceCode
 - external spiflash virtual disk

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 BSP_V2.x.x\project\xxx\templates (such as IAR6/7/8, Keil 4/5).

1.3 Example of application

- 1) Open the external spiflash virtual disk project and download to the evaluation board; then, connect the on-board usb interface to PC, and PC device manager will display a U disk device, which can be accessed and programmed after formatting.
- 2) Users can also enumerate CD-ROM mode on PC by setting the "MSC_CDROM" macro, as shown below. This mode can only be read but not be written.

```
uint8_t scsi_inquiry[MSC_SUPPORT_MAX_LUN][SCSI_INQUIRY_DATA_LENGTH] =
{
    /* lun = 0 */
    {
#ifdef MSC_CDROM
        0x05,
        0x00,
        0x02,
        0x02,
#else //mass storage
        0x00, /* peripheral device type (direct-access device) */
        0x80, /* removable media bit */
        0x00, /* ansi version, ecma version, iso version */
        0x01, /* respond data format */
#endif

        SCSI_INQUIRY_DATA_LENGTH - 5, /* additional length */
        0x00, 0x00, 0x00, /* reserved */
        'A', 'T', '3', '2', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', /* vendor information "AT32" */
        'D', 'i', 's', 'k', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', /* Product identification "Disk" */
        '2', '.', '0', '0' /* product revision level */
    }
};
```

Note: The external SPI FLASH used in this demo is WINBOND W25Q128FV, based on which the commands supported by code are compiled. If other external storage memories are used, it is necessary to modify the underlying driver.

2 Revision history

Table 1. Document revision history

Date	Version	Revision note
2022.04.18	2.0.0	Initial release.
2023.04.25	2.0.1	Added description of CDROM.

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