FAQ0049
Frequently Asked Questions

How to place IAP into NZW area?

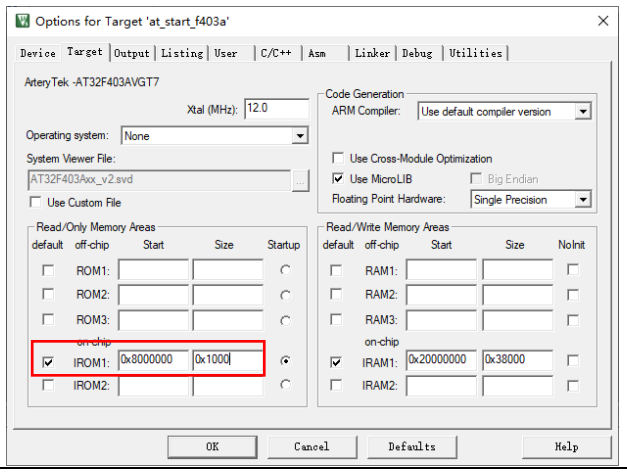
Questions:

For some AT32 MCU series, they feature zero-wait (ZW) and non-zero-wait (NZW) Flash memory. The start address of zero-wait area is at 0x08000000. In order to save space for putting more APPs into ZW, the IAP can be placed in NZW area, that is, its start address is not 0x08000000. Then how to load IAP into NZW?

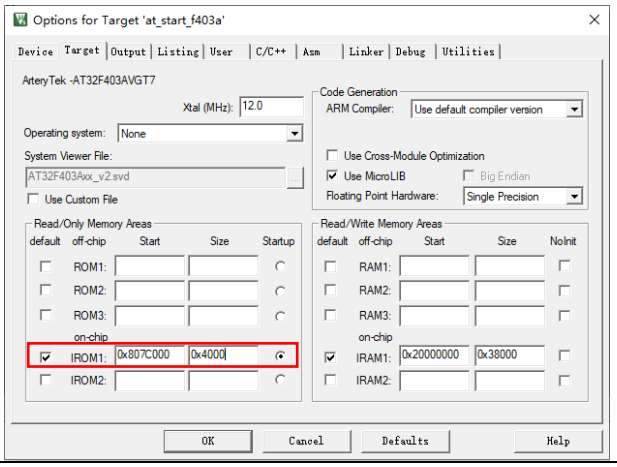
Answer:

IAP can be placed at the start address of any Flash sector. When it is at the start address other than sector 0, a bootloader is required to be add onto the sector 0, where the bootloader jumps to IAP, and then jumps to APP through IAP.

1. FAQ0049_SourceCode_V2.0.0\utilities\FAQ0049_demo\source_code\guide is demo for bootloader. Its start address is 0x08000000 and have 4KB reserved space. The users' bootloader size are configured according to the actual space requirements. LED4 will blink when program starts running in bootloader.



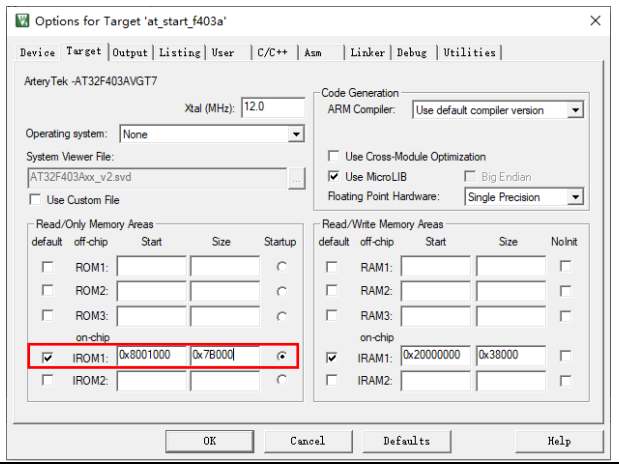
2. FAQ0049_SourceCode_V2.0.0\utilities\FAQ0049_demo\source_code\iap is an IAP demo. Its start address is 0x0807C000 and has 16KB reserved space. The IAP size are configured according to the actual space requirements. LED2 will blink when program starts running in IAP.



Note: the start address of interrupt vector table should be the same as that of IAP.

```
/* config vector table offset */
nvic_vector_table_set(NVIC_VECTTAB_FLASH, 0x7C000);
```

3. FAQ0049_SourceCode_V2.0.0\utilities\FAQ0049_demo\source_code\app_led3_toggle is an APP demo. Its start address is 0x08001000, that is, starting from sector 2. It should be noted that after read protection is enabled, the first 4KB Flash memory is write protected by default. Therefore, if the uses want to enable read protection, the APP start address must not be placed at the firt 4KB.



Note: the start address of interrupt vector table should be the same as that of APP.

```
/* config vector table offset */
nvic_vector_table_set(NVIC_VECTTAB_FLASH, 0x1000);
```

Testing method:

Erase the entire Flash memory before programming booltloader, use ICP, ISP or compiler to program bootloader, and LED will blink after successful programming.

Use ICP, ISP or compiler to program IAP, and LED3 will blink after successful programming.

Use ICP, ISP, compiler or IAP upgrade software (FAQ0049_SourceCode_V2.0.0\utilities\FAQ0049_demo\tool_release) to program APP, and LED4 will blink after successful programming.

Type: MCU applications
Applicable products: AT32 MCU family
Main function: Flash
Minor function: None

Document revision history

Date	Revision	Changes
2022.2.16	2.0.0	Initial release

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