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.

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☑ Options for Target 'at_start_f403a' ×
Device Target Output Listing User C/C++ Asm Linker Debug Utilities
AtteryTek -AT32F403AVGT7
Operating system: None
System Viewer File: Use Cross-Module Optimization
Use Custom File
Read/Only Memory Areas default off-chip Start Size Startup default off-chip Start Size NoInit
on-chip rouw (0x800000 (0x1000) C rouw (0x2000000 (0x38000) C
OK Cancel Defaults Help

 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.

	Options for Target 'at_start_f403a' X
D	vice Target Output Listing User C/C++ Asm Linker Debug Utilities
	teryTek -AT32F403AVGT7Code Generation
	Xtal (MHz): 12.0 ARM Compiler: Use default compiler version 💌
	Ipprating system: None
	ystem Viewer File:
	A 132P4U3AXX_V2.svd
	Use Custom File
	Read/Only Memory Areas Read/Write Memory Areas
	default off-chip Start Size Startup default off-chip Start Size NoInit
	□ ROM1: □ □ C □ RAM1: □ □ □
	C RAM2:
	C RAM3:
	on-chip on-chip
	IROM1: 0x807C000 0x4000 € IRAM1: 0x2000000 0x38000 □
	□ IROM2: □ □ □ IRAM2: □ □
	OK Cancel Defaults Help



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);

 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.

🔢 Options for 1	arget 'at_start_f403a'		×
Device Target	Output Listing User C/C++ A	sm Linker Debug Utilities	1
ArteryTek -AT32F	403AVGT7 Xtal (MHz): 12.0	Code Generation ARM Compiler: Use default compiler version	•
Operating system:	None		
System Viewer File		Use Cross-Module Optimization	
AT32F403Axx_v	2.svd	Use MicroLIB 🗌 Big Endian	
Use Custom F	île	Floating Point Hardware: Single Precision	-
Read/Only Men	nory Areas	Read/Write Memory Areas	
default off-chip	Start Size Startup	default off-chip Start Size	Nolnit
E ROM1	• • • • •	RAM1:	
□ ROM2	C	RAM2:	
E ROM3	0	RAM3:	
on-chip		on-chip	
IROM1	0x8001000 0x7B000 (*	IRAM1: 0x20000000 0x38000	
IROM2	0	IRAM2:	
	, ,		
		1	
	OK Can	Defaults	Help

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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