**FAQ0004**
Frequently Asked Questions

# How to compile a function or variable to a designated address in Keil?

## Questions:

How to compile a function or variable to a designated address in Keil?

## Answer:

**Method 1: Attribute**

1. Load the function to the designated position
   For example, to assign a delay function in main.c to the address 0x08020000, the user needs to specify the delay function at the function definition location of the c file.

   ```
   void delay(void) __attribute__ ((section(".ARM.__at_0x08020000")));
   ```

2. Load the array to the designated location

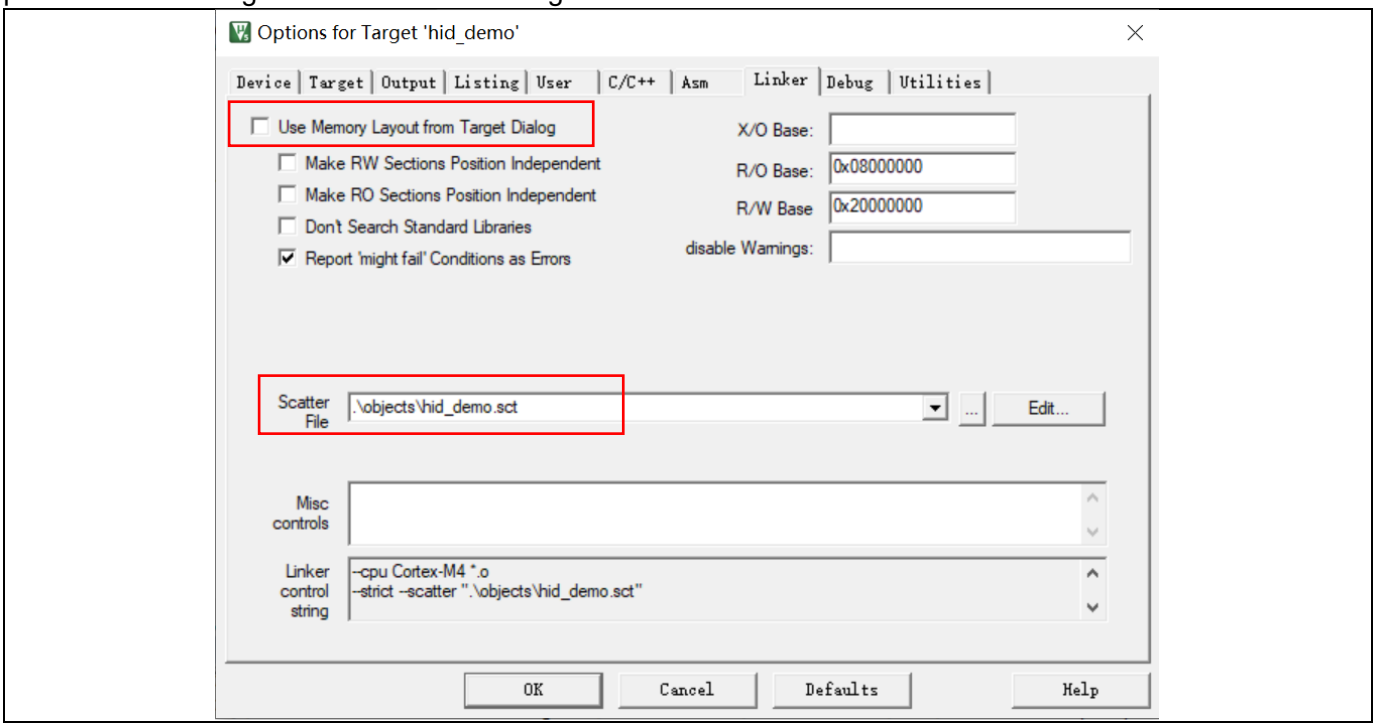
   ```
   int Temp[] __attribute__ ((section(".ARM.__at_0x08020000"))) = {0x1, 0x2};
   ```

3. Load the variables to the designated location, take AT32F403AVGT7 as an example,
   The C code can be modified as follows：

   ```
   const int Temp __attribute__ ((section(".ARM.__at_0x08020000"))) = 10;    // RO
   int Temp __attribute__ ((section(".ARM.__at_0x20000000"))) = 10;          // RW
   ```

**Method 2: Modify .sct files**

Load the target file to the specified location and modify the engineering configuration as follows. For details, please refer to .sct grammatical rules. The figure below is to edit sct files in Keil environment.




Where, "***Use Memory Layout from Traget Dialog***" is ticked by default, you should untick this option, click on "***Edit***" next to "***Scatter File***" to start editing .sct file.

The following example shows how to perform scatter loading for the target files of core_main.c.

```
; *************************************************************
; *** Scatter-Loading Description File generated by uVision ***
; *************************************************************

LR_IROM1 0x08000000 0x00020000  {      ; load region size_region
  ER_IROM1 0x08000000 0x00020000  {  ; load address = execution address
   *.o (RESET, +First)
   *(InRoot$$Sections)
   .ANY (+RO)
  }
  RW_IRAM1 0x20000000 0x00038000  {  ; RW data
   .ANY (+RW +ZI)
  }
}

LR_IROM2 0x08020000 0x00020000  {      ; load region size_region
  ER_IROM2 0x08020000 0x00020000  {  ; load address = execution address
   core_main.o (+RO)
   }

}
```

The red area means that the .c file is loaded into the address 0x08020000, with the size being 0x00020000. Here, the purpose is to link the target files compiled by .c files to the 128 KB area of MCU internal Flash, and the area size is 128 KB.

**Type:** Development tool
**Applicable products:** All MCUs
**Main function:** None
**Minor function:** None

**Document revision history**

| Date | Revision | Changes |
|---|---|---|
| 2022.2.15 | 2.0.0 | Initial release |

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