KEIL Scatter Loading Instructions

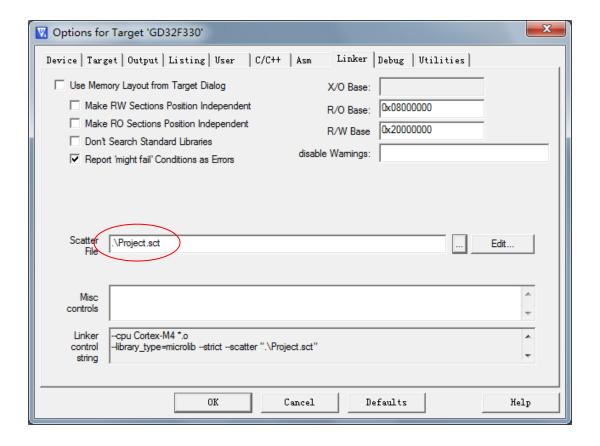
1. the .c file is loaded to the specified location

To achieve to the scatter load under the keil and the .sct file is modified. This project will be implemented to load the hw_config.c file to the 0x08002000 starting position. The path to the .sct file is "ScatterLoading\Project\KEIL\MDK-ARM\ Project.sct", opened as follows:

```
*****************
*** Scatter-Loading Description File generated by uVision ***
LR IROM1 0x08000000 0x00002000 { ; load region size region
  ER_IROM1 0x08000000 0x00002000 { ; load address = execution address
   *. o (RESET, +First)
   *(InRoot$$Sections)
 }
  RW_IRAM1 0x20000000 0x00002000 { ; RW data
   . ANY (+RW +ZI)
 }
}
LR IROM2 0x08002000 0x0000050 {
   ER_IROM2 0x08002000 0x0000050 { ; load the hw_config.c file to the 0x08002000 starting
                                       position
   hw_config.o (+RO)
LR_IROM3 0x0800dfb0 0x0000040 {
   ER_IROM3 0x0800dfb0 0x0000040 { ; the delay() function defined as section "delay", then
                                        load the delay() to the 0x0800dfb0 starting position
 main.o (delay)
}
LR_IROM4 0x08002050 0x000dfb0 {
   ER_IROM4 0x08002050 0x000dfb0 { ; load address = execution address
   .ANY (+RO)
 }
}
```

The red part is part of the added part for implementing the scatter loading, if you want to implement hw_config.c to load to 0x08002000 starting position only need to add the following code in the sct file:

2. Add the modified sct file above to Keil



3. Load the function to the specified location

}

Load the delay function in the main.c to the starting position of 0x0800dfb0.

1. add the following code in the .sct file:
LR_IROM3 0x0800dfb0 0x0000040 {
ER_IROM3 0x0800dfb0 0x0000040 { ; the delay() function defined as section "delay", then load the delay() to the 0x0800dfb0 starting position
main.o(delay)

```
2. __attribute__((section("delay"))) in the definition of the function, and the specific code as follows:
    void delay(void)__attribute__((section("delay")));
    void delay(void)
    {
        for(i=0;i<0xffff;i++);
    }</pre>
```

4. Load the array to the specified location

5. The result

Open the "ScatterLoading\Project\KEIL\MDK-ARM\ list\Project.map", as follows:

```
Load Region LR_IROM2 (Base: 0x08002000, Size: 0x000000010, Max: 0x00000050, ABSOLUTE)
· Execution Region ER_IROM2 (Base: 0x08002000, Size: 0x00000010, Max: 0x00000050, ABSOLUTE)
· Base Addr · · · Size · · · · · · Type · · Attr · · · · Idx · · · E · Section · Name · · · · · · Object
 (0x08002000) · 0x0000000e · · · Code · · · RO · · · · · · · 137 · · · i.interrupt_config · hw_config.o
Load Region LR_IROM3 (Base: 0x0800dfb0, Size: 0x00000014, Max: 0x00000014, ABSOLUTE)
··Execution Region ER IROM3 (Base: 0x0800dfb0, Size: 0x00000014, Max: 0x00000040, ABSOLUTE)
··Base·Addr···Size·····Type··Attr····Idx···E·Section·Name·····Object
0x0800dfb0) 0x00000014 Code R0 delay main.o
Load Region LR IROM4 (Base: 0x08002050, Size: 0x0000094a0, Max: 0x00000dfb0, ABSOLUTE)
··Execution·Region·ER_IROM4·(Base:·Ox08002050,·Size:·Ox0000094a0,·Max:·Ox00000dfb0,·ABSOLUTE)
Base Addr Size Type Attr Idx E-Section Name Object
..0x08002050...0x000000024...Code...RO.......3515.....text........startup_gd32f3x0.o
  0x08002074 · · · 0x000000c8 · · Code · · RO · · · · · · · 158 · · · i.SystemInit · · · · · · system_gd32f3x0.o
 ..0x0800213c...0x00000054...Code...RO.......3524....i.gd_eval_led_init..gd32f3x0_eval.o
...0x08002190 ...0x000000018 ...Code ...RO ........3527 ....i.gd_eval_led_toggle ..gd32f3x0_eval.o
 0x080021a8 ···0x00000004e ···Code ···RO ········1414 ···i.gpio_mode_set ····gd32f3x0_gpio.o

0x080021f6 ···0x0000007c ···Code ···RO ·······1416 ···i.gpio_output_options_set ··gd32f3x0_gpio.o
  0x08002272 ··· 0x00000018 ··· Code ··· RO ··· ··· · · · · · · · i.main ···
 ·0x0800228a · · · 0x00000002 · · · PAD
 \cdot \texttt{0x} \texttt{08} \texttt{00228c} \cdot \cdot \cdot \texttt{0x} \texttt{00} \texttt{00} \texttt{00} \texttt{11} \cdot \cdot \cdot \cdot \texttt{Code} \cdot \cdot \cdot \texttt{RO} \cdot \cdot \cdot \cdot \cdot \cdot \cdot \texttt{1707} \cdot \cdot \cdot \cdot \texttt{1.nvic\_vector\_table\_set} \cdot \cdot \texttt{gd32f3x0\_misc.o}
 0x080022a0 · · 0x00000020 · · Code · · RO · · · · · · 1789 · · · i.rcu periph clock enable · gd32f3x0 rcu.o
  0x080022c0 · · 0x000000c0 · · Code · · RO · · · · · · 159 · · · i.system_clock_108m_hxtal · system_gd32f3x0.o
  .0x08002380...0x00000008...Code...RO........160...i.system_clock_config..system_gd32f3x0.o
  0x08002388 · · · 0x00000c78 · · · PAD
 0x08003000 · 0x0000084f0 · Data · RO · · · · · · 128 · · · .ARM._AT_0x08003000 · const-data.o
```