

# *RealView MDK*安裝與使用方法介紹

---

*support.wuyang@gmail.com*

浯陽科技有限公司



**WU-YANG**  
Technology Co., Ltd.



# Declared Version

## Training Only

### Declare

<b>Document Version</b>	<b>1.00</b>
<b>Release Date</b>	<b>2009.08.3</b>
<b>Document Title</b>	<b>RealView MDK安裝與使用方法介紹</b>
<b>Exercise Time</b>	<b>-----</b>
<b>Platform</b>	<b>RealView MDK</b>
<b>Peripheral</b>	<b>GPIO</b>
<b>Author</b>	<b>WU-YANG Technology Co., Ltd.</b>



# Outline

---

- ☐ MDK下載與安裝
- ☐ Release Note瀏覽
- ☐ 範例操作與環境介紹
- ☐ 上機實作



# MDK軟體下載

- ❑ 網址:<https://www.keil.com/demo/eval/arm.htm>
- ❑ 填入資料後下載

The screenshot shows a web browser window titled "ARM Version 3.24 Evaluation Software Request - Windows Internet Explorer". The address bar shows the URL <https://www.keil.com/demo/eval/arm.htm>. The page content includes the KEIL logo (An ARM Company) and a navigation menu with links: Home, Products, Events, Support. A search bar is also present. The main content area is titled "Evaluation Software" and "ARM Evaluation Software RealView Microcontroller Development Kit Version 3.24". It instructs users to "Complete the following form to download the evaluation software." and provides a form titled "Enter Your Contact Information Below (bold fields are required)". The form fields are: First Name, Last Name, Professional Title, E-mail, Company, Company Web Site, Address (multiple lines), City, State/Province, and Zip/Postal Code. A sidebar on the left contains links for Product Information, Device Database, and Evaluation Software.

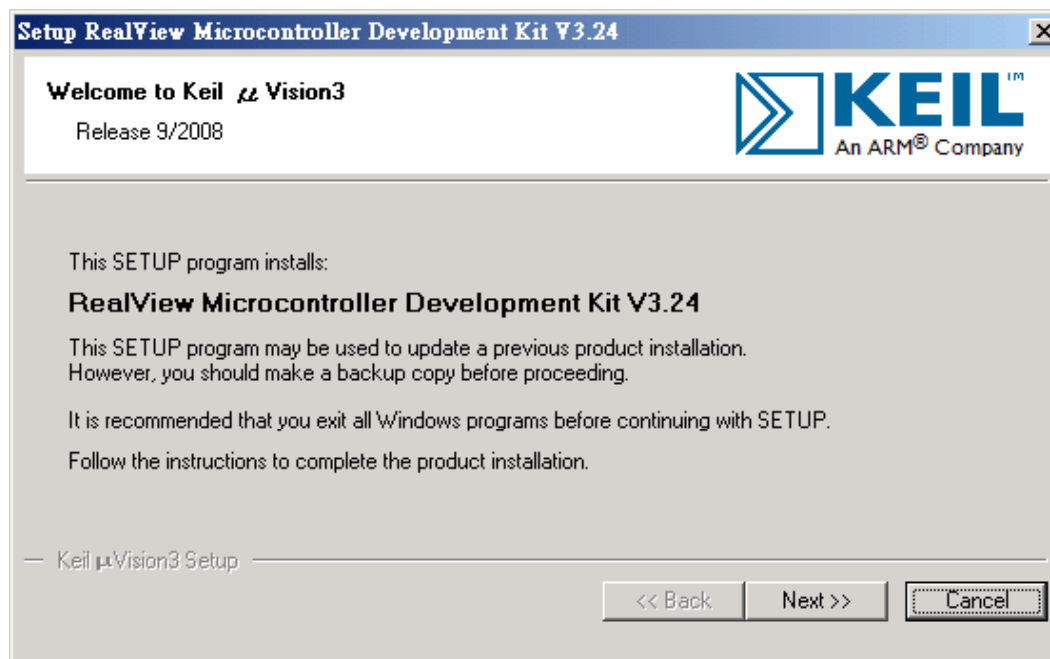


# MDK軟體安裝

- ☐ 執行MDK324.exe

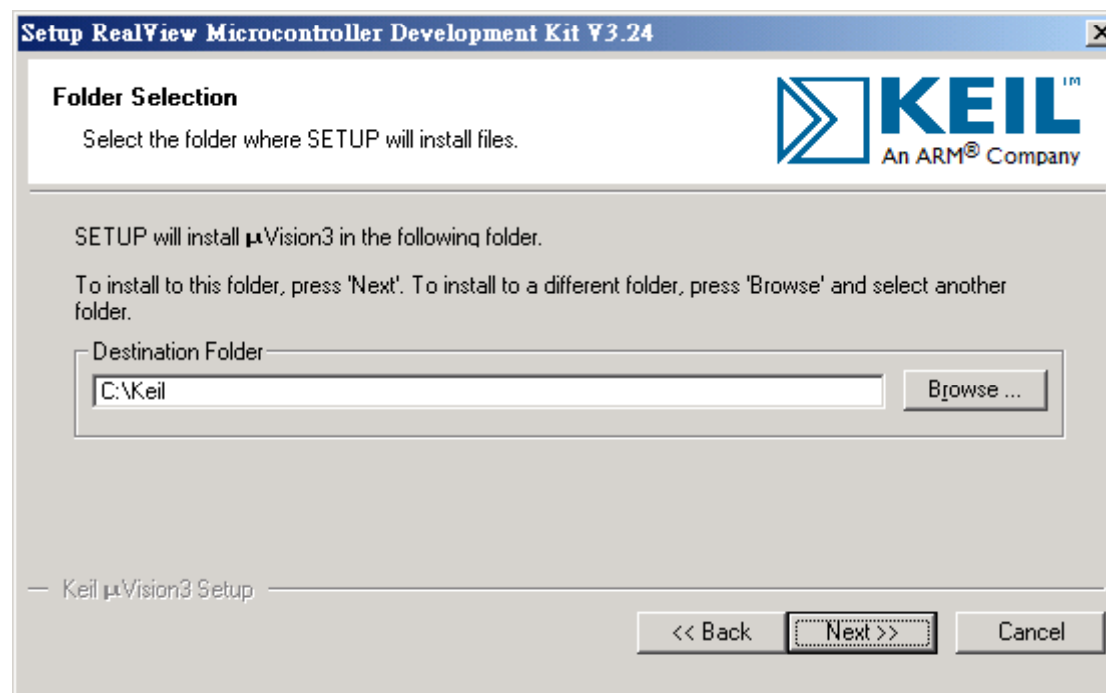


- ☐ 選Next





- 選擇開發工具安裝路徑，按Next





- 填入基本資料，按Next

Setup RealView Microcontroller Development Kit V3.24

**Customer Information**  
Please enter your information.

Please enter your name, the name of the company for whom you work and your E-mail address.

First Name: john

Last Name: john

Company Name: NCU

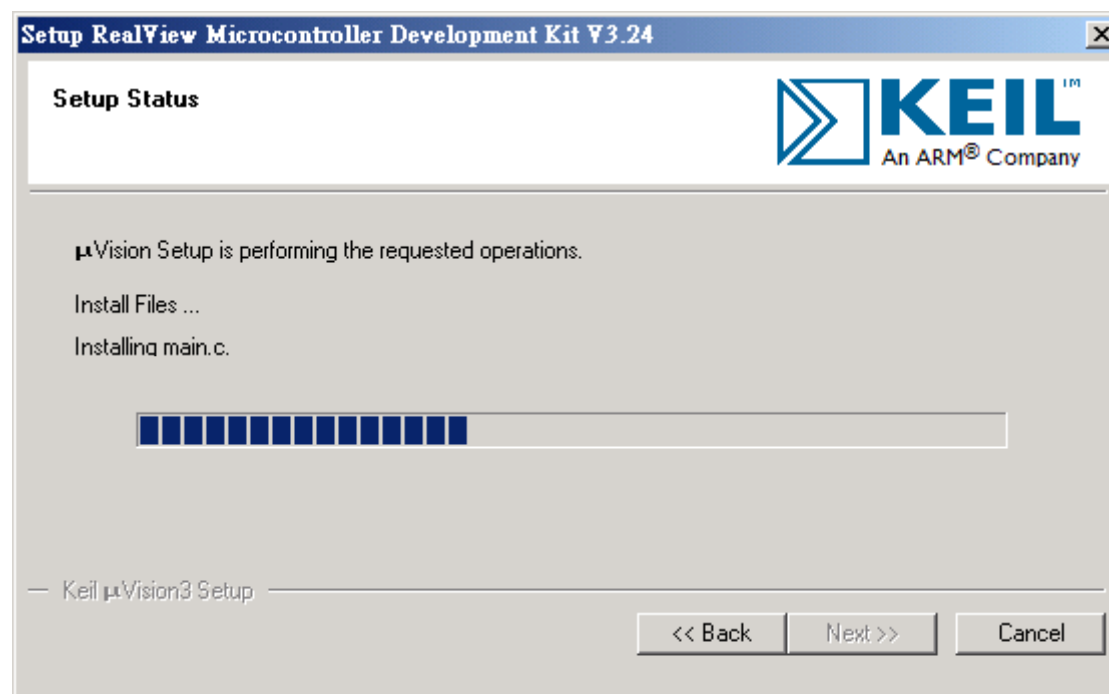
E-mail: john@jijj

— Keil  $\mu$ Vision3 Setup —

<< Back   Next >>   Cancel



## □ 開始安裝

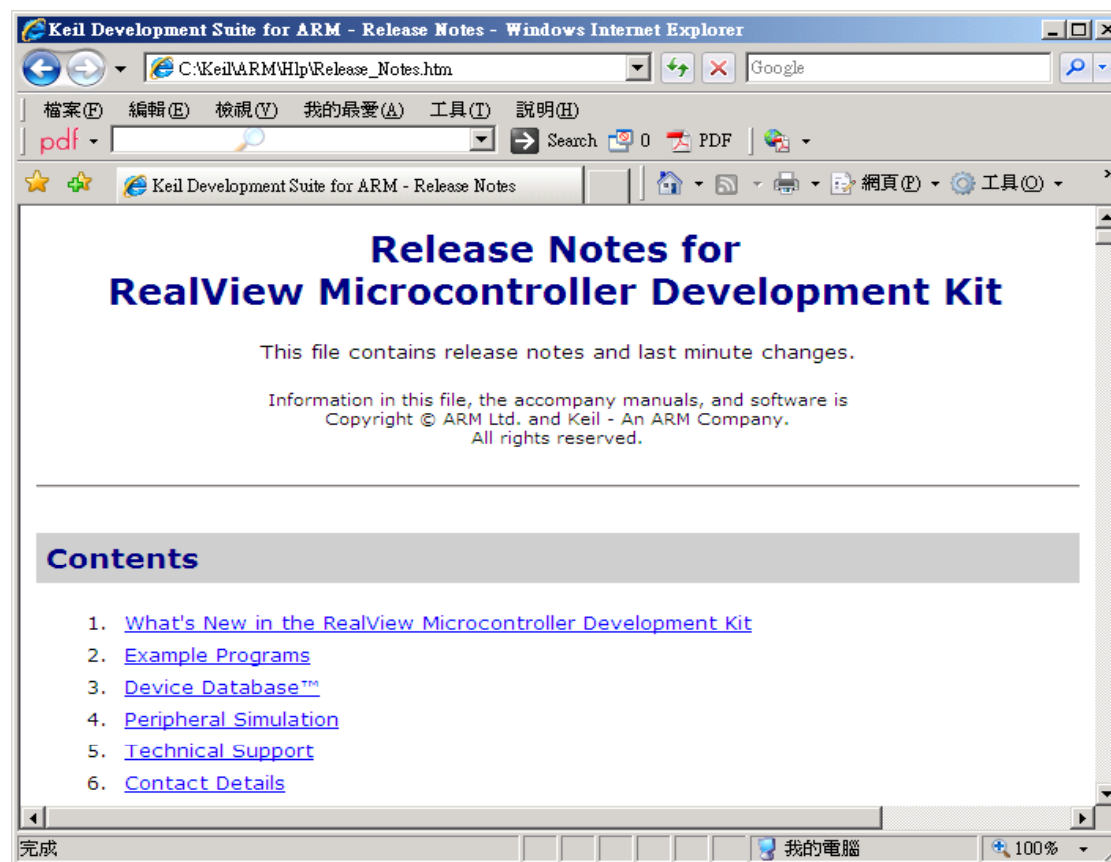






# Release Note瀏覽

## □ 重要的Release Note資訊





## Keil MDK3.24版本更新資訊(包含uvision, Device support, ULINK 等等)

Keil Development Suite for ARM - Release Notes - Windows Internet Explorer

file:///C:/Keil/ARM/Hlp/Release\_Notes.htm#DeviceDatabase

檔案(F) 編輯(E) 檢視(V) 我的最愛(A) 工具(T) 說明(H)

★ ☆ Keil Development Suite for ARM - Release Notes

The following sections list the changes instituted in each release of the ARM toolset.

### RealView Microcontroller Development Kit - Version 3.24

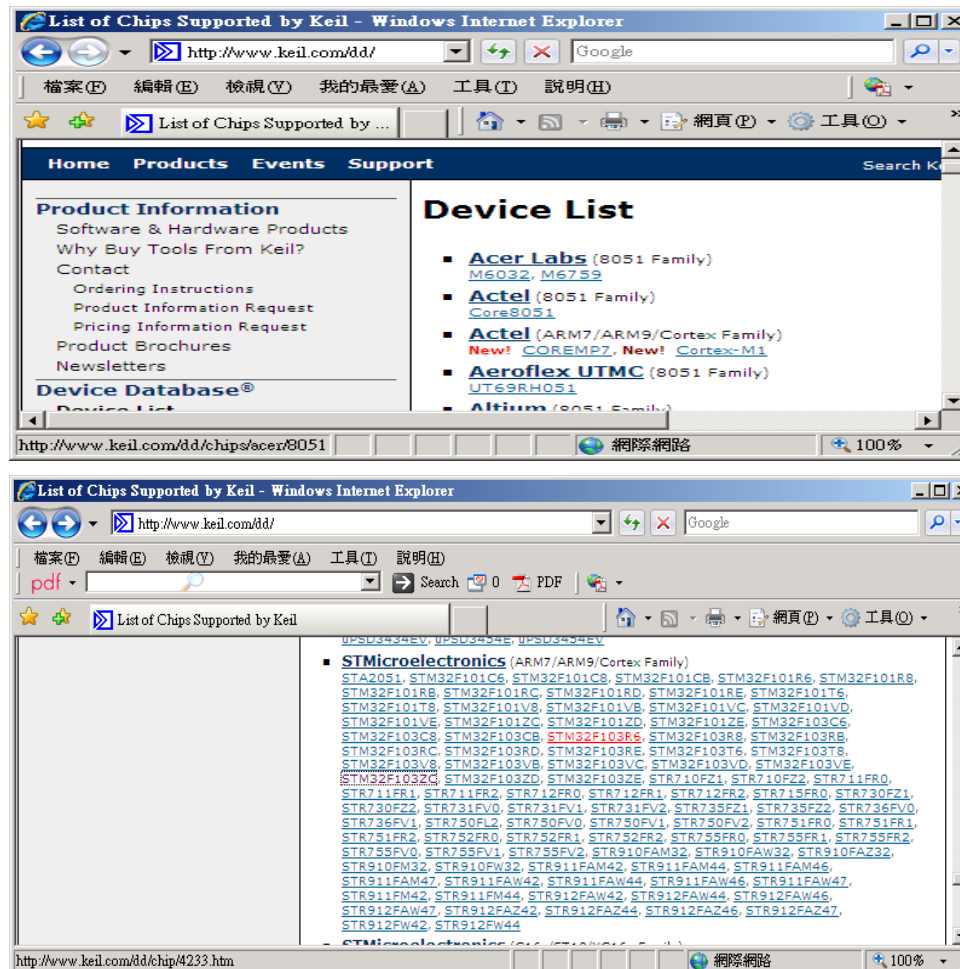
- **[uVision]**
  - Changed: default path for GNU is now for **CodeSourcery**. A problem with the assembler source file path is corrected.
  - Added: support for 'Find in Files' in multi-project-workspaces.
- **[uVision Debugger]**
  - Updated: J-Link driver version V3.90 which supports the Cortex-M3 Serial Wire Debug (SWD) interface.
- **[Board Support]**
  - Added: BSP for **Atmel AT91SAM9RL-EK** board with **AT91SAM9RL64** device in folder **..\ARM\Boards\Atmel\AT91SAM9RL-EK**.
  - Added: BSP for **Toshiba TMPA910** board with **TMPA910CRAXBG** device in folder **..\ARM\Boards\Toshiba\TMPA910**.
  - Added: BSP for **Toshiba TPM330** board with **TPM330FDFG** device in folder **..\ARM\Boards\Toshiba\TPM330**.
  - Added: BSP for **Keil MCBTPM330** board with **TPM330FDFG** device in folder **..\ARM\Boards\Keil\MCBTPM330**.
  - Added: RTX support for **Atmel AT91SAM9RL** devices in folder **..\ARM\Boards\Atmel\AT91SAM9RL-EK\RTX\_Blinky**.
- **[New Supported Devices]**
  - Actel [Cortex-M1](#) and [COREMP7](#) device.
  - Toshiba [TMPA910CRAXBG\\_ARM9](#) based device and **Cortex-M3** based devices [TPM330FDFG](#), [TPM330FWFG](#), and [TPM330FYFG](#).
- **[Device Support]**
  - Updated: Flash algorithm for **Luminary LM3S** devices with 256kB Flash. Mass Erase implemented according to Errata sheet and works now for the whole Flash.
  - Corrected: **Altera Cortex-M1** driver now blocks interrupts during single stepping.
  - Added: startup code example for **Actel** devices in **..\ARM\Startup\Actel**.
  - Updated: flash programming algorithms for **Atmel SAM926x** devices in **..\ARM\Flash\**.
  - Corrected: CAN register names according the new **ST** include files in **..\ARM\Boards\Keil\MCBSTM32\CAN**.
  - Added: Flash algorithm for **NXP LPC2109** device which has 64kB flash.
- **[Device Simulation]**
  - Corrected: **ADuC70xx** Interrupt Controller simulation according to updated manual (IRQEN/FIQEN only set bits).
  - Corrected: **ADuC70xx** simulation of PLA Elements according to new user manual from Analog Device.
  - Corrected: simulation of UARTx window which is used for **STM32x** devices. The erroneous handling of the ESC-Key inside UARTx window is fixed.
- **[ULINK]**
  - Added: support for **Toshiba TPM330** device.
  - Added: support for **Analog Devices ADuC7037/38** (Multi-TAP JTAG).

RealView Microcontroller Development Kit - Version 3.23

我的電腦 100%

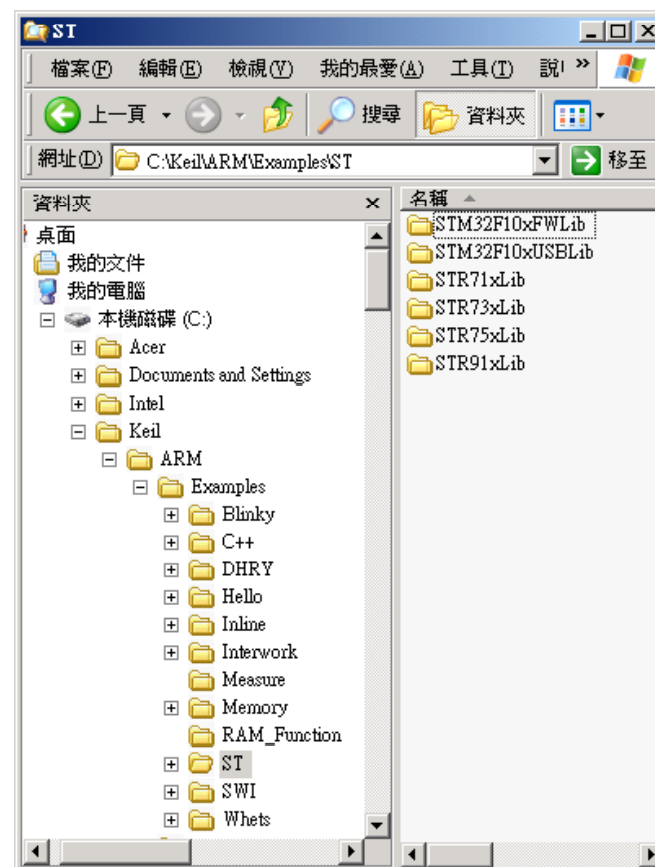
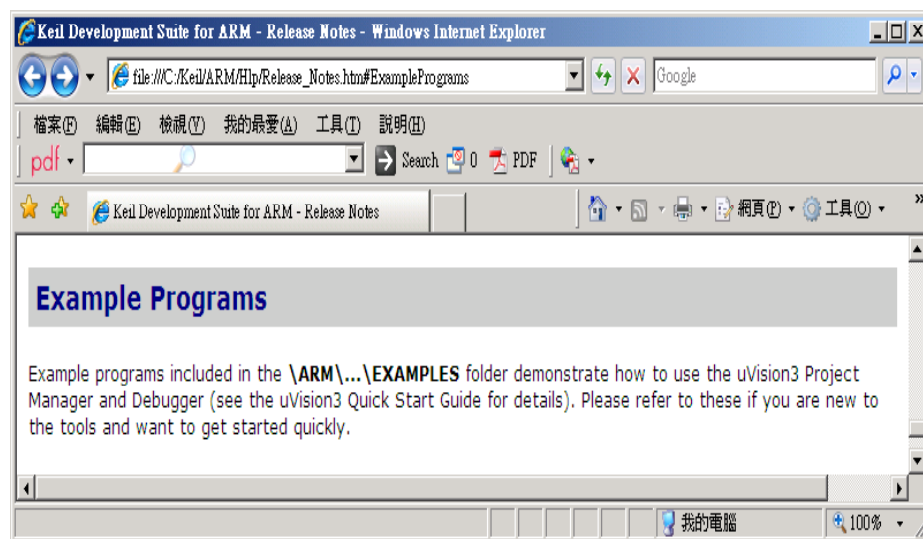


## □ 檢查支援的Device





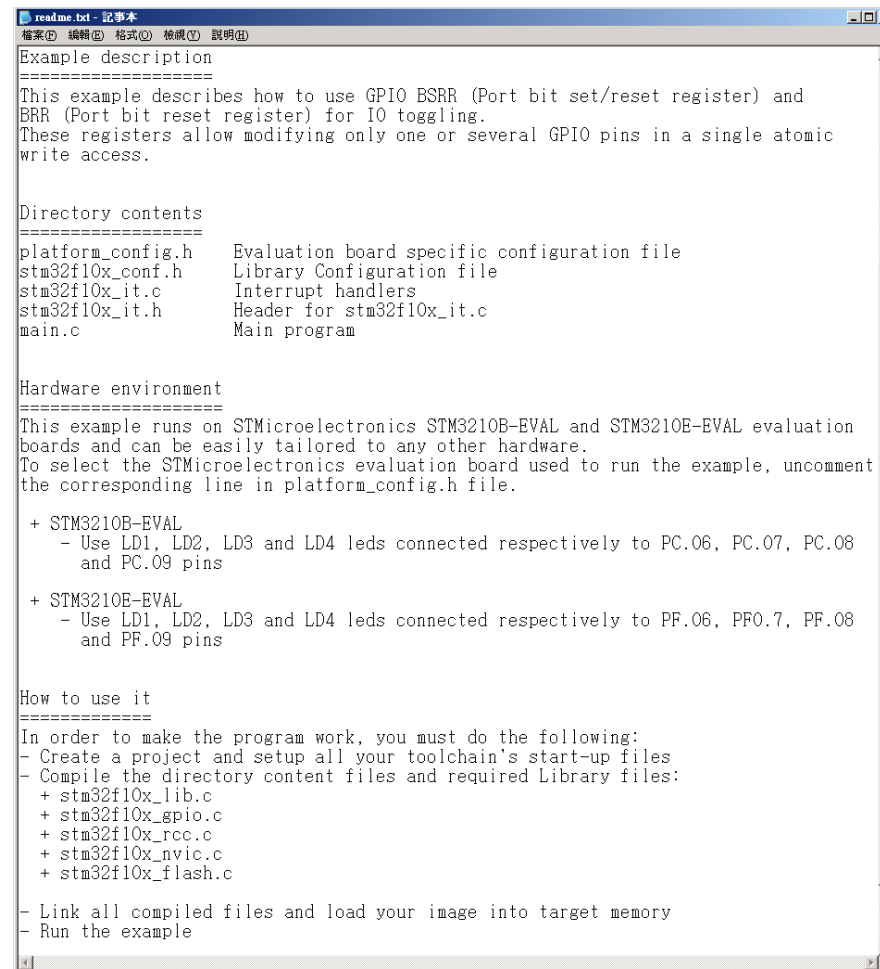
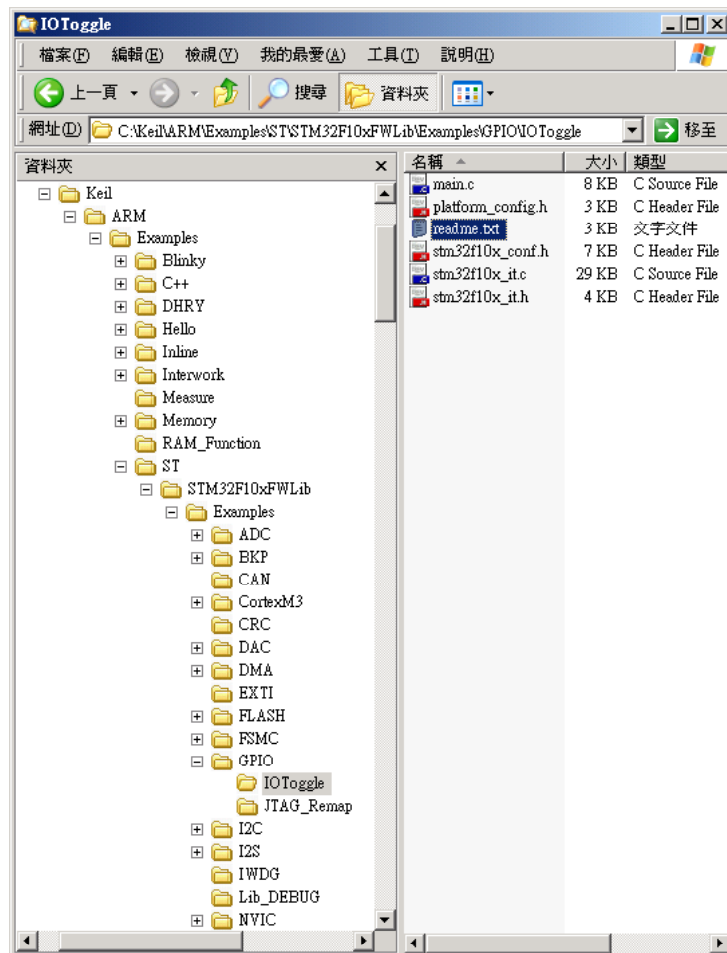
## ❑ Release Note所指出可參考的範例程式之目錄位置





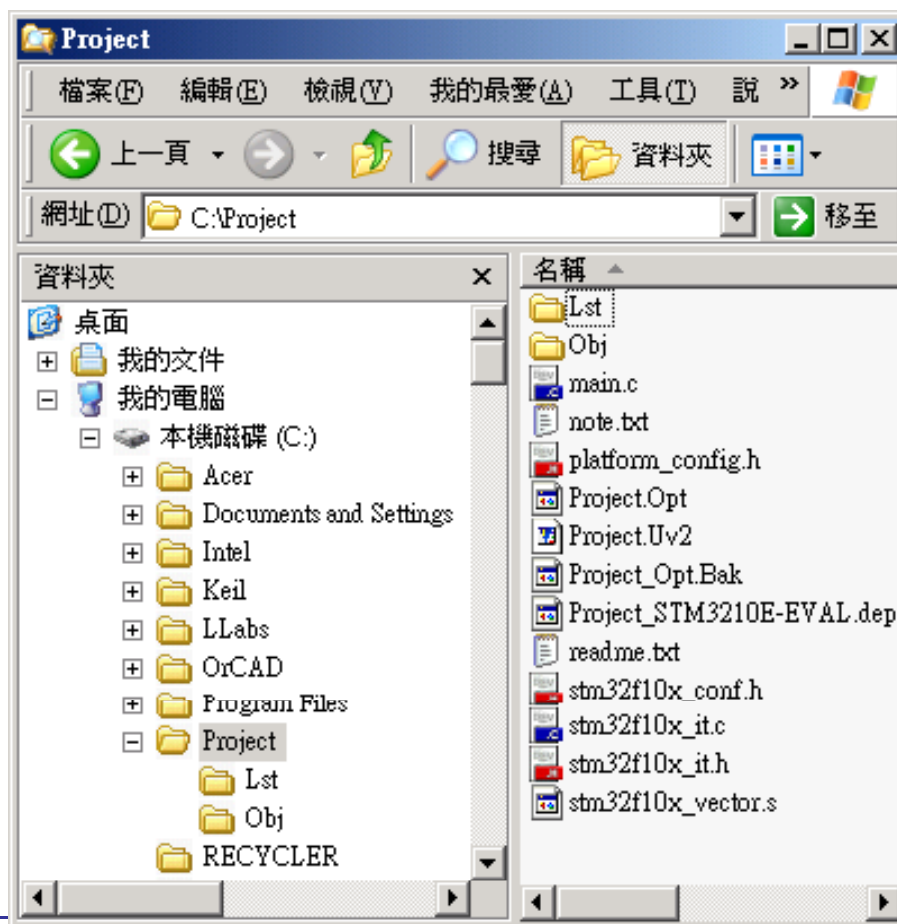
# 範例操作與環境介紹

## □ 以GPIO\IOToggle範例作介紹



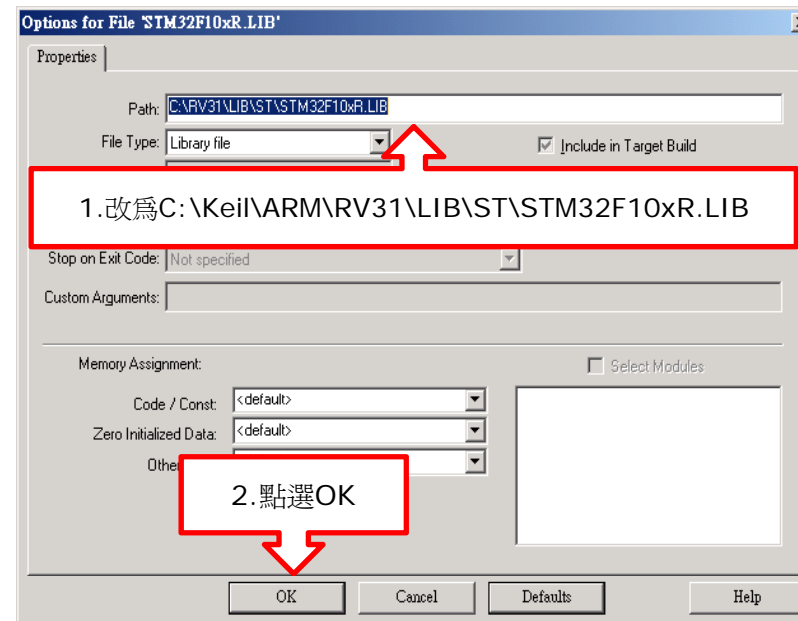
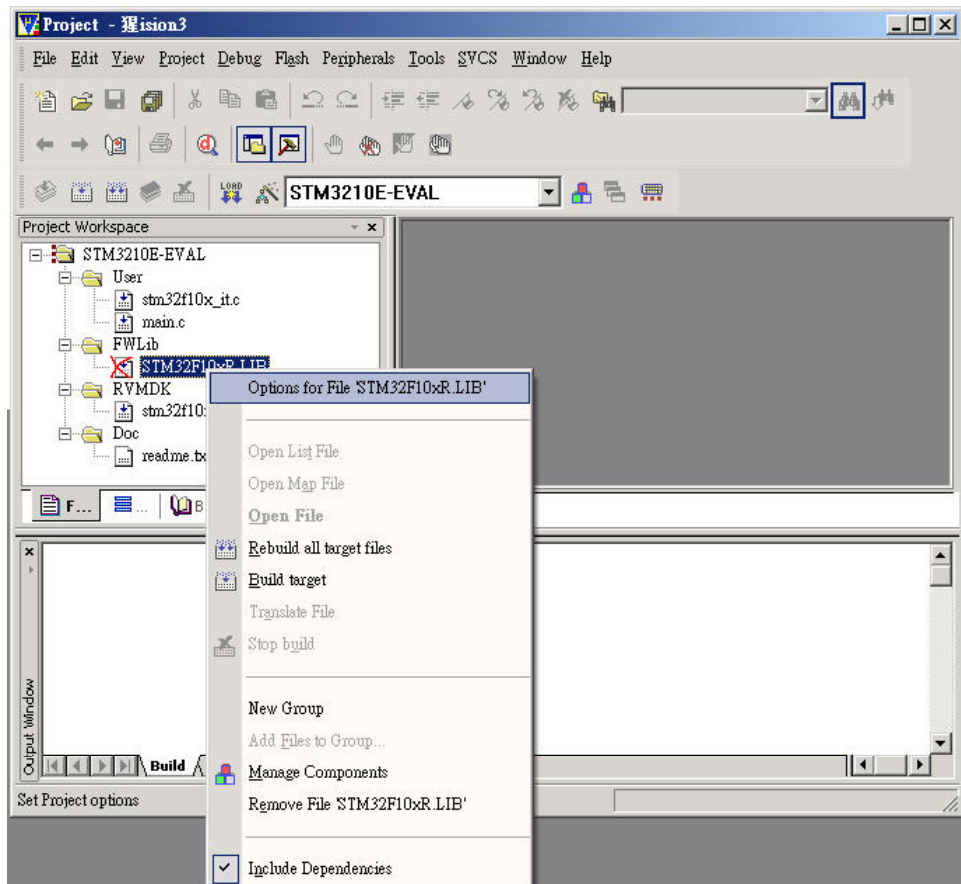


- ❑ 依序分別將C:\Keil\ARM\Examples\ST\...\Project與GPIO\IOToggle內的檔案copy到新的目錄C:\Projerct，再點選Project.Uv2可開啟開發環境





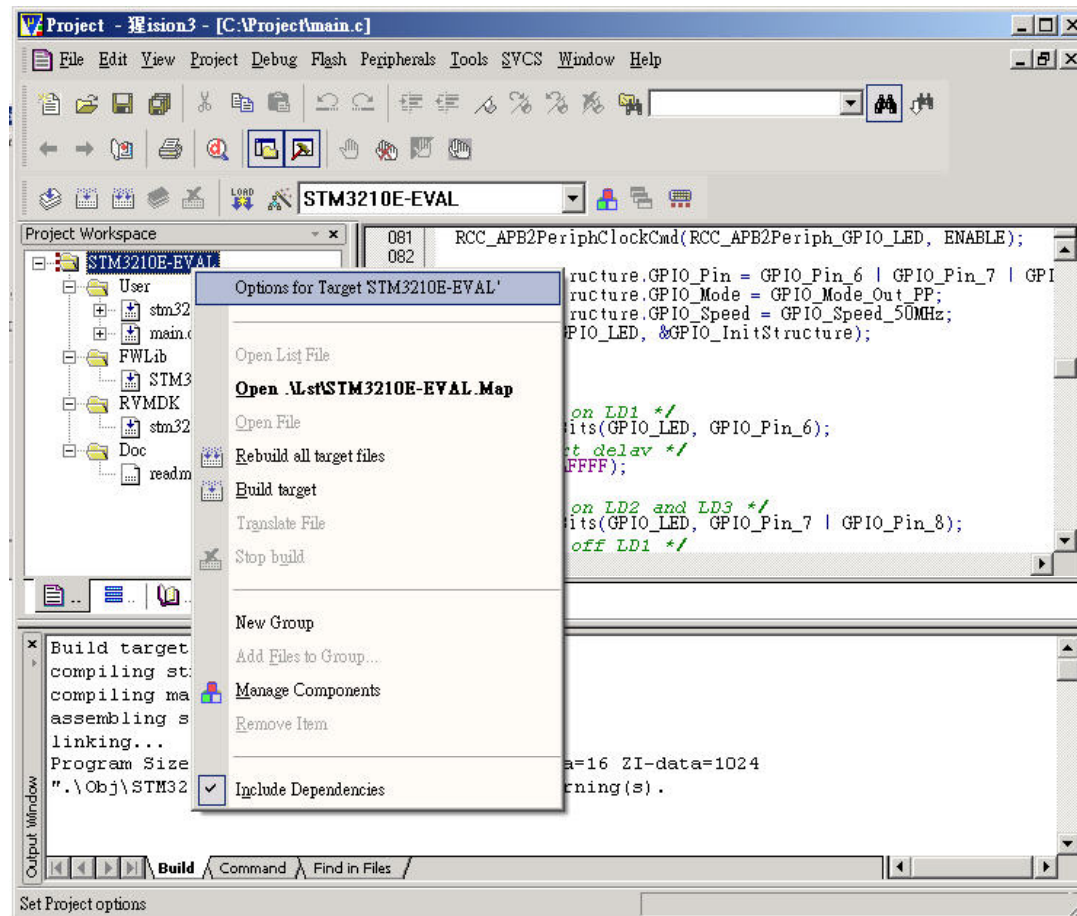
- 若STM32F10xR.LIB位置有打叉，則修改STM32F10xR.LIB路徑







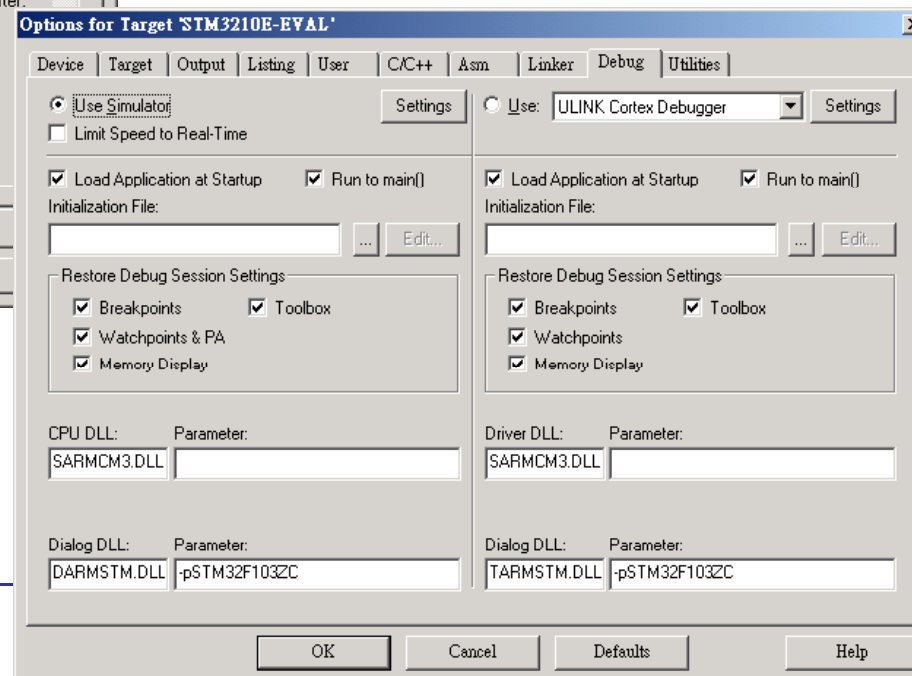
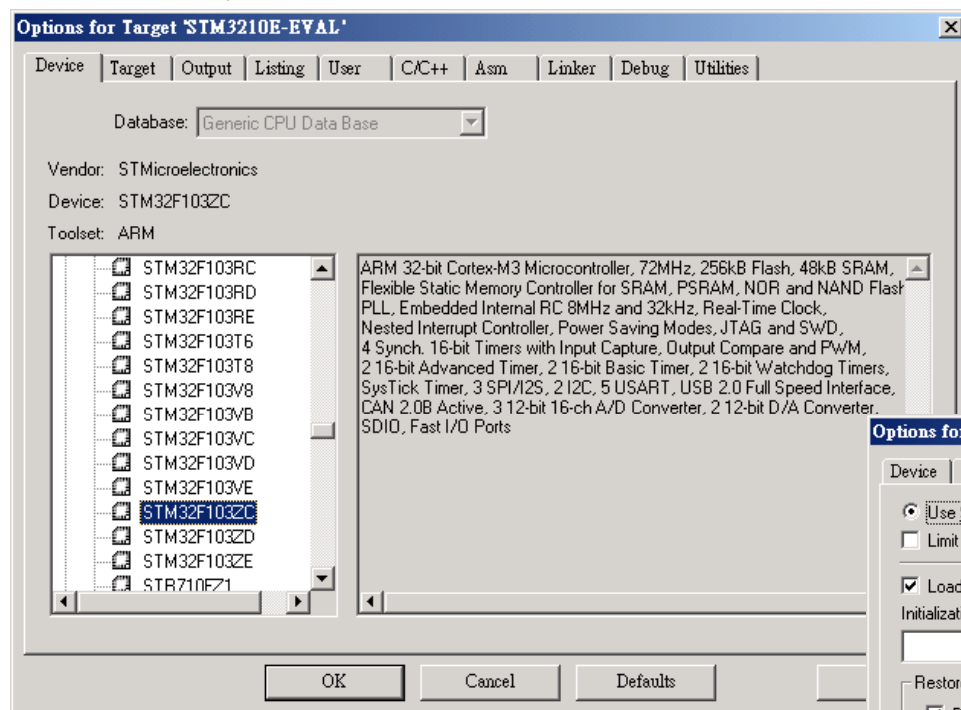
## ❑ 按滑鼠右鍵選擇Option for Target...





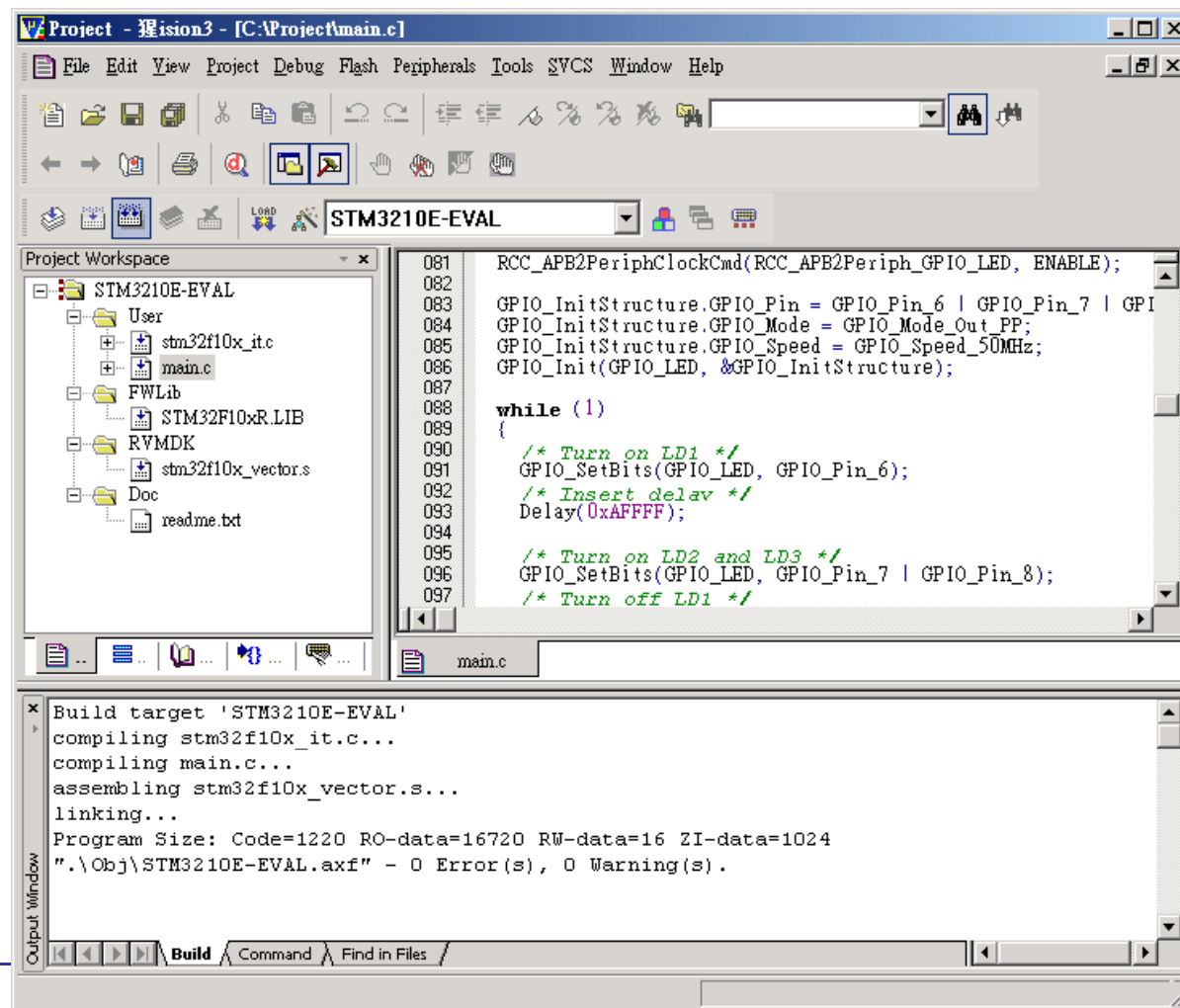


## ❑ 選擇Device與Use Simulator，按OK





## ❑ Project->Rebuild all target files (執行編譯)





- 當Device選擇”STM32F103ZC”時，由Readme.txt與platform\_config.h可知GPIO PF.6~9連接至 LED1~4

```
stm32f10x_it.h      Header for stm32f10x_it.c
main.c              Main program

Hardware environment
=====
This example runs on STMicroelectronics STM3210B-EVAL and STM3210E-EVAL evaluation
boards and can be easily tailored to any other hardware.
To select the STMicroelectronics evaluation board used to run the example, uncomment
the corresponding line in platform_config.h file.

+ STM3210B-EVAL
- Use LD1, LD2, LD3 and LD4 leds connected respectively to PC.06, PC.07, PC.08
  and PC.09 pins

+ STM3210E-EVAL
- Use LD1, LD2, LD3 and LD4 leds connected respectively to PF.06, PF.07, PF.08
  and PF.09 pins
```

```
Project - 猩ision3 - [C:\Project\platform_config.h]

File Edit View Project Debug Flash Peripherals Tools SVCS Window Help

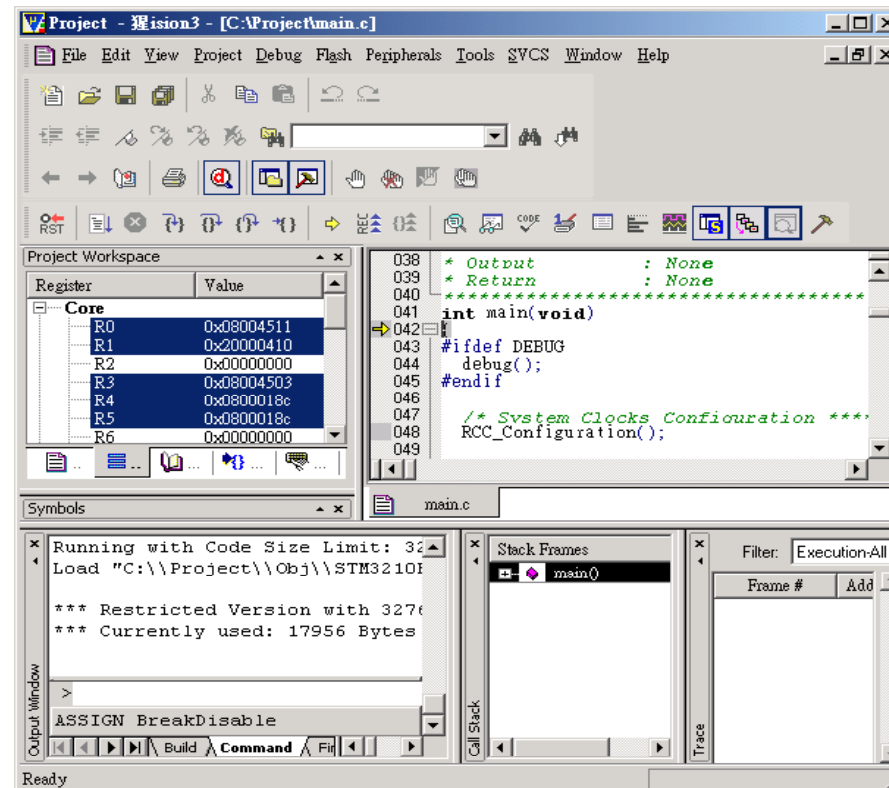
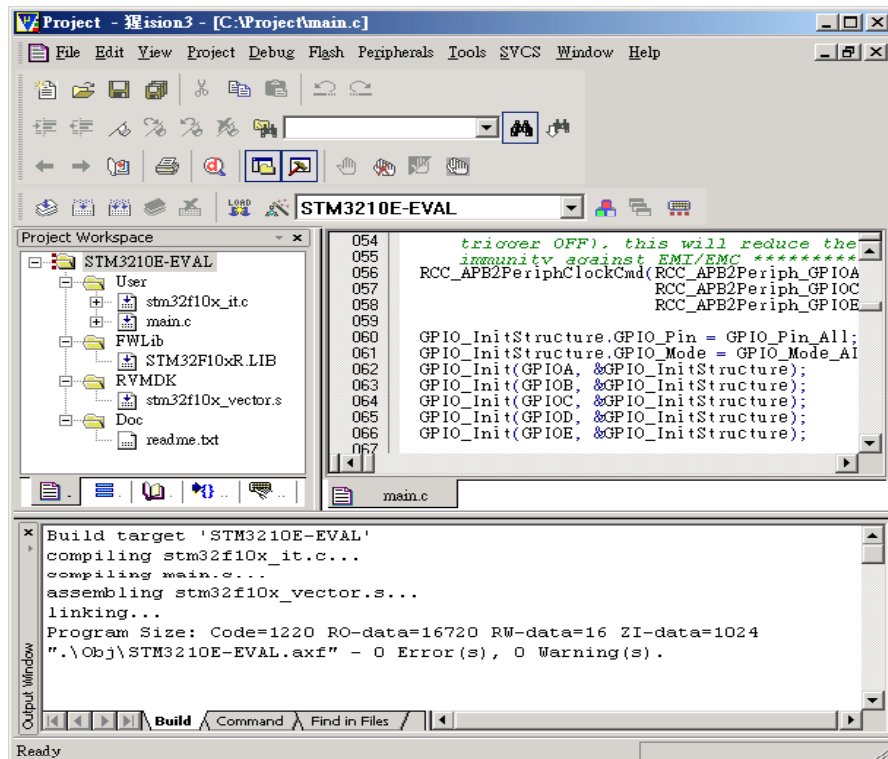
Project Workspace
STM3210E-EVAL
User
  stm32f10x_it.c
  main.c
FWLib
  STM32F10xR.LIB
  RVMDK
  stm32f10x_vector.s
  Doc
  readme.txt

23 /* Uncomment the line corresponding to the STMicroelectr
24 used to run the example */
25 #if defined (USE_STM3210B_EVAL) && !defined (USE_STM3210E_EV
26 // #define USE_STM3210B_EVAL
27 #define USE_STM3210E_EVAL
28 #endif
29
30 /* Define the STM32F10x hardware depending on the used
31 #ifdef USE_STM3210B_EVAL
32 #define GPIO_LED          GPIOC
33 #define RCC_APB2Periph_GPIO_LED    RCC_APB2Periph_GPIOC
34 #elif defined USE_STM3210E_EVAL
35 #define GPIO_LED          GPIOF
36 #define RCC_APB2Periph_GPIO_LED    RCC_APB2Periph_GPIOF
37 #endif /* USE STM3210B_EVAL */
38
39 /* Exported macro -----
main.c platform_co...

Output Window
Build target 'STM3210E-EVAL'
compiling stm32f10x_it.c...
compiling main.c...
assembling stm32f10x_vector.s...
linking
Build Command File
```

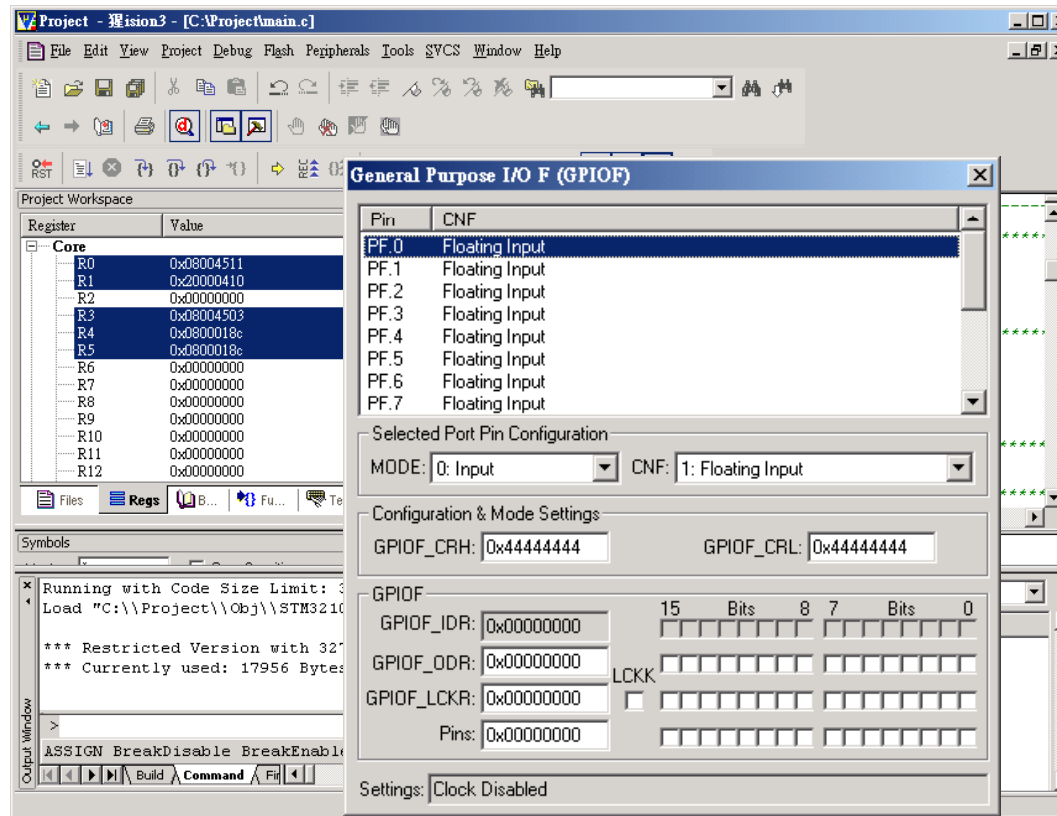
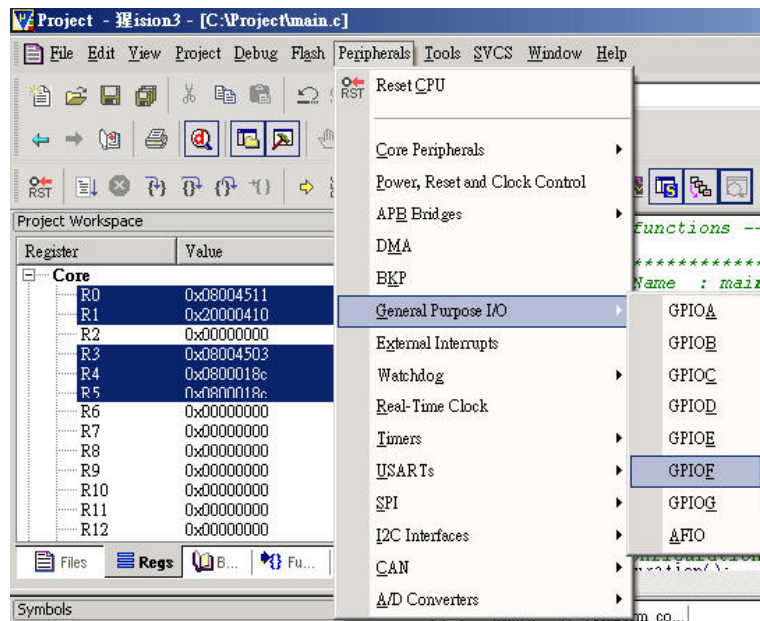


## □ 選 Start Debug Section



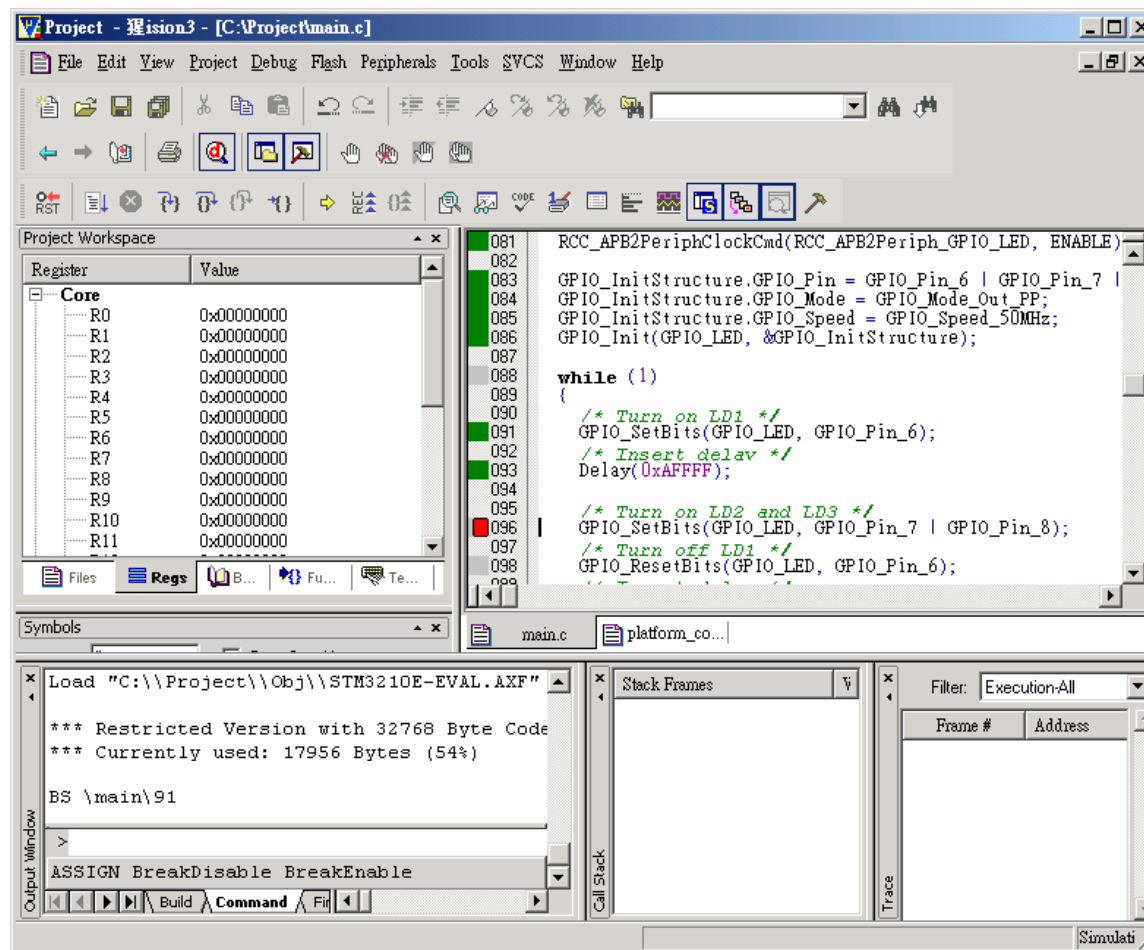


## □ 開啟GPIO Port F模擬視窗





## □ 設breakpoint





- 按F10(Step over)，觀察一步一步執行的情況，可看出執行過  
"GPIO\_SetBits(GPIO\_LED,GPIO\_Pin\_6);", GPIOF.6 之狀態  
改變為 active

The screenshot shows the STM32 IDE interface. The main window displays the following C code:

```
081 RCC_APB2PeriphClockCmd(RCC_APB2Periph_GPIO_LED, ENABLE);
082
083 GPIO_InitStructure.GPIO_Pin = GPIO_Pin_6 | GPIO_Pin_7 | GPIO_Pin_8 | GPIO_Pin_9;
084 GPIO_InitStructure.GPIO_Mode = GPIO_Mode_Out_PP;
085 GPIO_InitStructure.GPIO_Speed = GPIO_Speed_50MHz;
086 GPIO_Init(GPIO_LED, &GPIO_InitStructure);
087
088 while (1)
089 {
090     /* Turn on LD1 */
091     GPIO_SetBits(GPIO_LED, GPIO_Pin_6);
092     /* Insert delay */
093     Delay(0xAFFFFF);
094
095     /* Turn on LD2 and LD3 */
096     GPIO_SetBits(GPIO_LED, GPIO_Pin_7 | GPIO_Pin_8);
097     /* Turn off LD1 */
098     GPIO_ResetBits(GPIO_LED, GPIO_Pin_6);
099     /* Insert delay */
100     Delay(0xAFFFFF);
101
102     /* Turn on LD4 */
103     GPIO_SetBits(GPIO_LED, GPIO_Pin_9);
104     /* Turn off LD2 and LD3 */
105     GPIO_ResetBits(GPIO_LED, GPIO_Pin_7 | GPIO_Pin_8);
106     /* Insert delay */
107     Delay(0xAFFFFF);
108 }
```

The 'General Purpose I/O F (GPIOF)' window shows the configuration for GPIOF.6 as 'GP output push-pull'.

Pin	CNF
PF.0	Analog Input
PF.1	Analog Input
PF.2	Analog Input
PF.3	Analog Input
PF.4	Analog Input
PF.5	Analog Input
PF.6	GP output push-pull
PF.7	GP output push-pull

The 'Output Window' shows the execution progress, including a memory dump and a command prompt.

Load "C:\\Project\\Obj\\STM3210E-EVAL.AXF"

\*\*\* Restricted Version with 32768 Byte Code Size

\*\*\* Currently used: 17956 Bytes (54%)

BS \\main\\91

>

ASSIGN BreakDisable BreakEnable

Build Command File





## 上機實作練習

- 以之前所示範之GPIO\IOToggle為例，參考下列程式碼之提示，重新建立專案目錄，將GPIOB9改為Input，GPIOF11改為output，重新進行編譯與模擬，觀察動作是否正確。

```
// Configure PB9 (User Button)*****
RCC_APB2PeriphClockCmd(RCC_APB2Periph_GPIOB, ENABLE);
GPIO_InitStructure.GPIO_Pin = GPIO_Pin_9;
GPIO_InitStructure.GPIO_Mode = GPIO_Mode_IN_FLOATING;
GPIO_InitStructure.GPIO_Speed = GPIO_Speed_50MHz;
GPIO_Init(GPIOB, &GPIO_InitStructure);

// Configure PF11 (User LED)*****
RCC_APB2PeriphClockCmd(RCC_APB2Periph_GPIOF, ENABLE);
GPIO_InitStructure.GPIO_Pin = GPIO_Pin_11;
GPIO_InitStructure.GPIO_Mode = GPIO_Mode_Out_PP;
GPIO_InitStructure.GPIO_Speed = GPIO_Speed_50MHz;
GPIO_Init(GPIOF, &GPIO_InitStructure);

while (1)
{
    if(GPIO_ReadInputDataBit(GPIOB,GPIO_Pin_9)==1)
    {
        // Turn on User LED
        GPIO_SetBits(GPIOF, GPIO_Pin_11);
        // Insert delay
        Delay(0xFFFFF); Delay(0xFFFFF); Delay(0xFFFFF); Delay(0xFFFFF);
        Delay(0xFFFFF); Delay(0xFFFFF);

        // Turn off User LED
        GPIO_ResetBits(GPIOF, GPIO_Pin_11);
        // Insert delay
        Delay(0xFFFFF); Delay(0xFFFFF); Delay(0xFFFFF); Delay(0xFFFFF);
        Delay(0xFFFFF); Delay(0xFFFFF);
    }
}
```



# Q & A

---



**WU-YANG**  
*Technology Co., Ltd.*