

iTE SDK

組態設定說明

V0.1

修訂記錄

修訂日期	修訂說明	頁次
2015/11/02	初建版本 V0.1	

1. 前言

1.1 編寫目的

說明 iTE SDK 組態設定的功能與作用,並指出相關模組設定的相對文件位置。

1.2 適用範圍

使用於 iTE SDK 開發的產品。

1.3 適用人員

適用於開發 iTE SDK 之嵌入式開發相關人員。

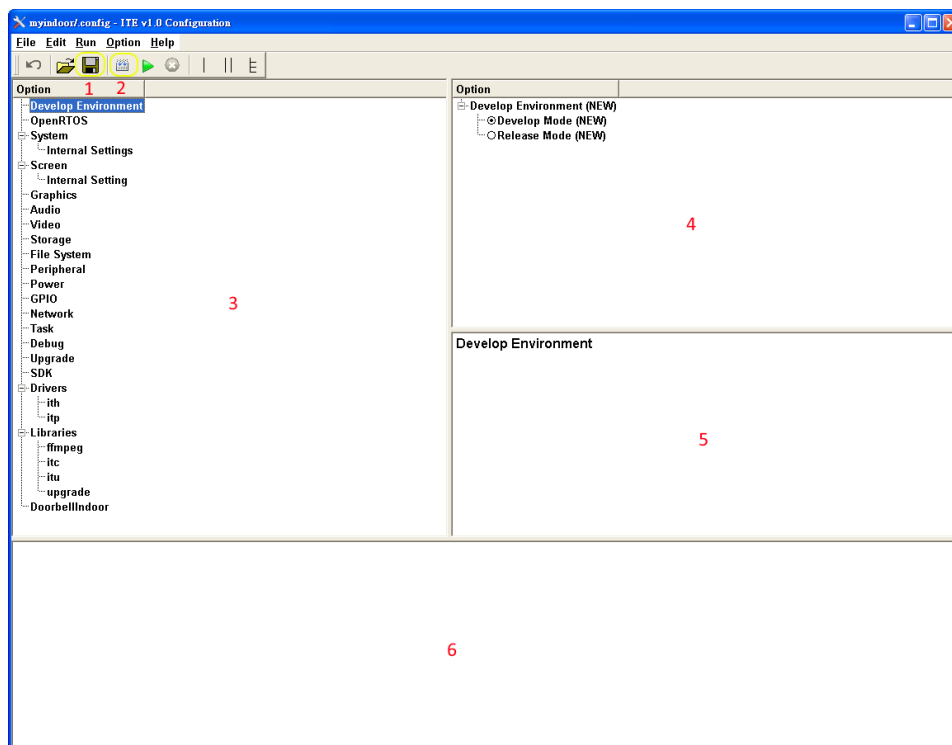
2. 組態設定

當開始編譯軟件之後，會開啟一個視窗。在這個視窗裡，可以更改軟件的設置，以及編譯軟件。

2.1 基本操作

這個視窗常用的有以下區塊。

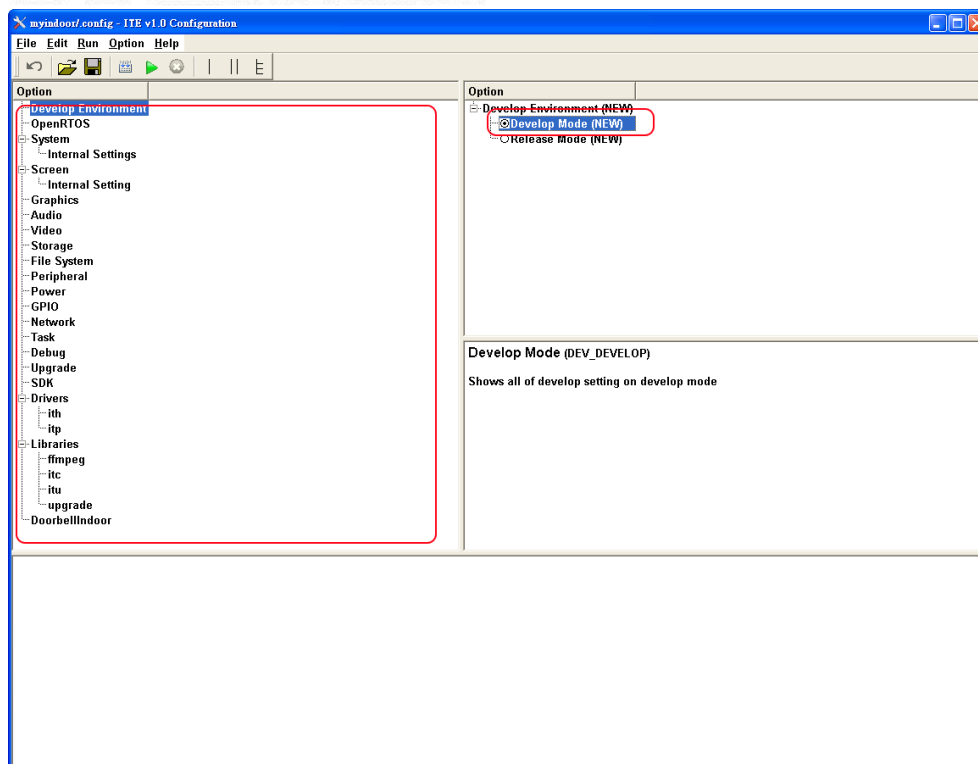
1. 儲存組態 (儲存軟件的設置)
2. 建置專案 (建置並編譯軟件)
3. 組態分類 (每個組態的分類)
4. 組態選單 (每個分類項的選單)
5. 組態說明 (每個非類項的說明)
6. 建置專案輸出畫面 (編譯過程的輸出畫面)



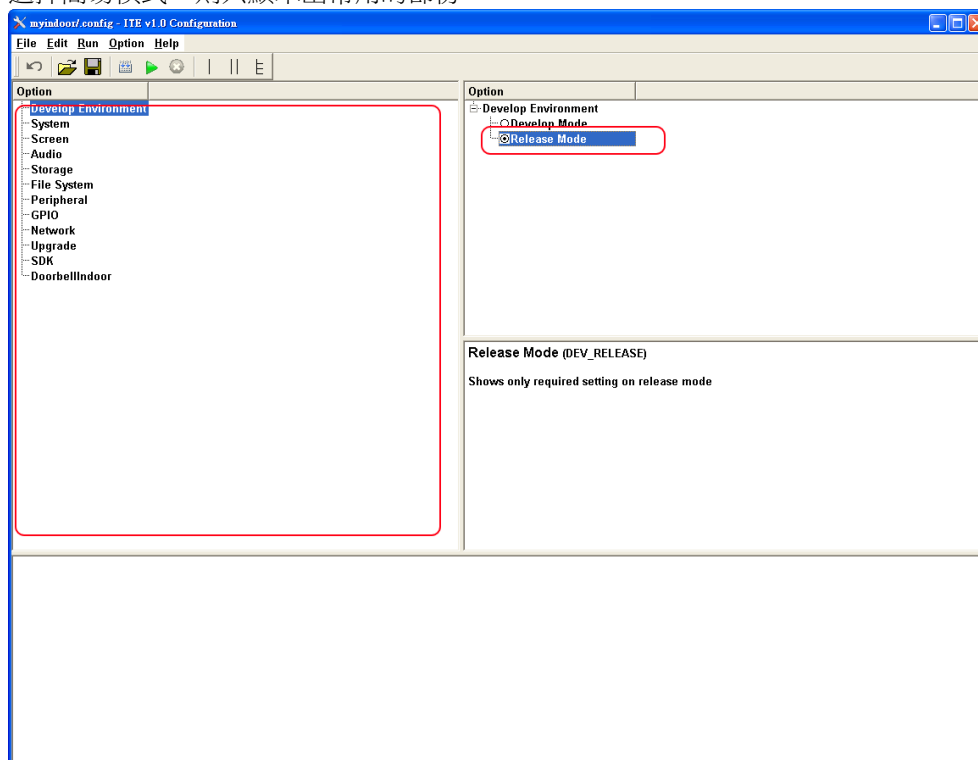
在組態分類的第一項 “Develop Environment”，有以下兩個選單

1. Develop mode (開發模式：選擇此項目，會顯示出所有分類項與選單)
2. Release mode (簡易模式：選擇此項目，只會顯示出常用選單)

如下圖：選擇開發模式，顯示出較多的分類項。

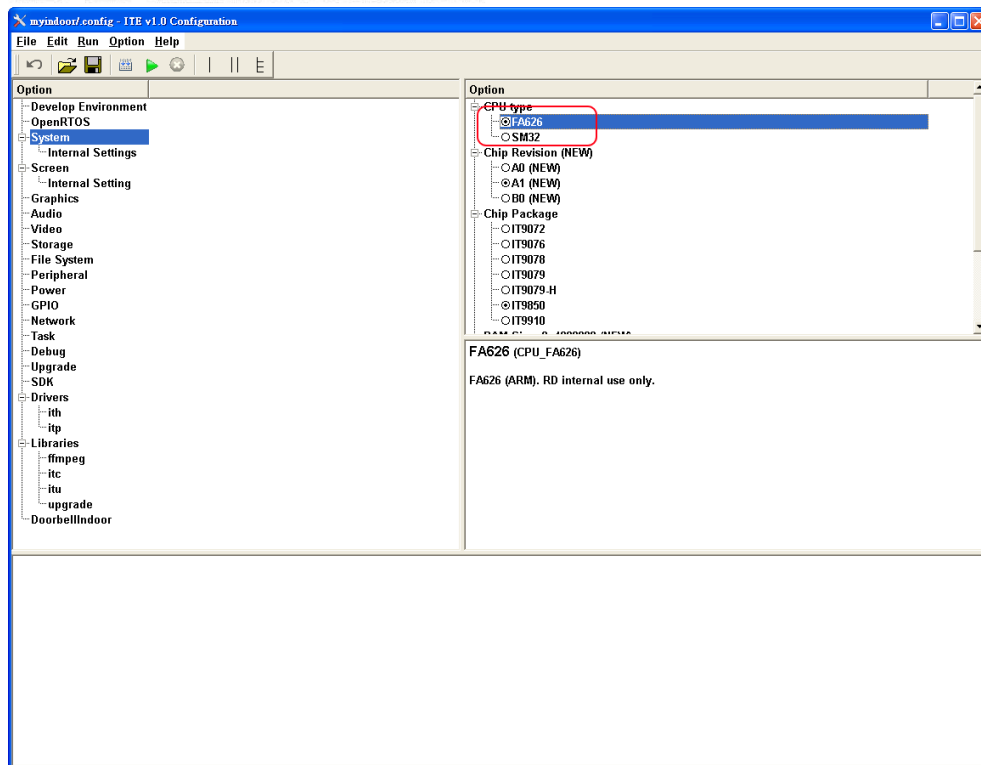


選擇簡易模式，則只顯示出常用的部份。

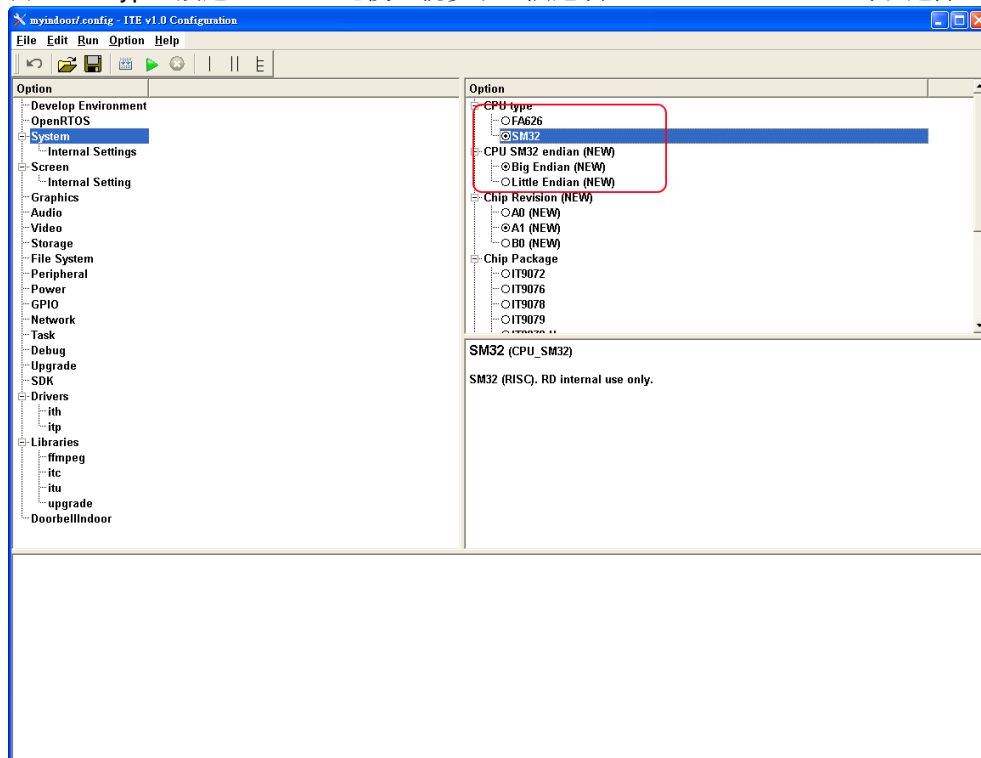


有些選單的設定會與其他選項有關，當某一選項開啟之後，才會顯示出對應的額外選單。

如下圖：CPU type 選擇 FA626



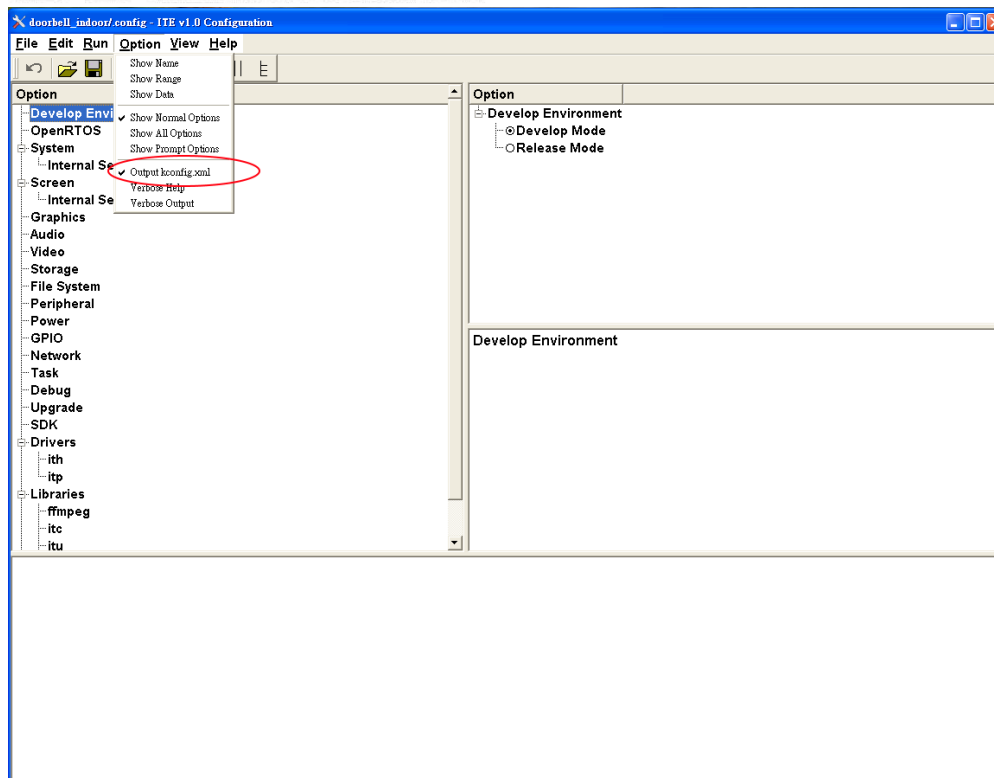
當 CPU type 改選 SM32 之後，就多了一個選項 CPU SM32 endian 可以選擇。



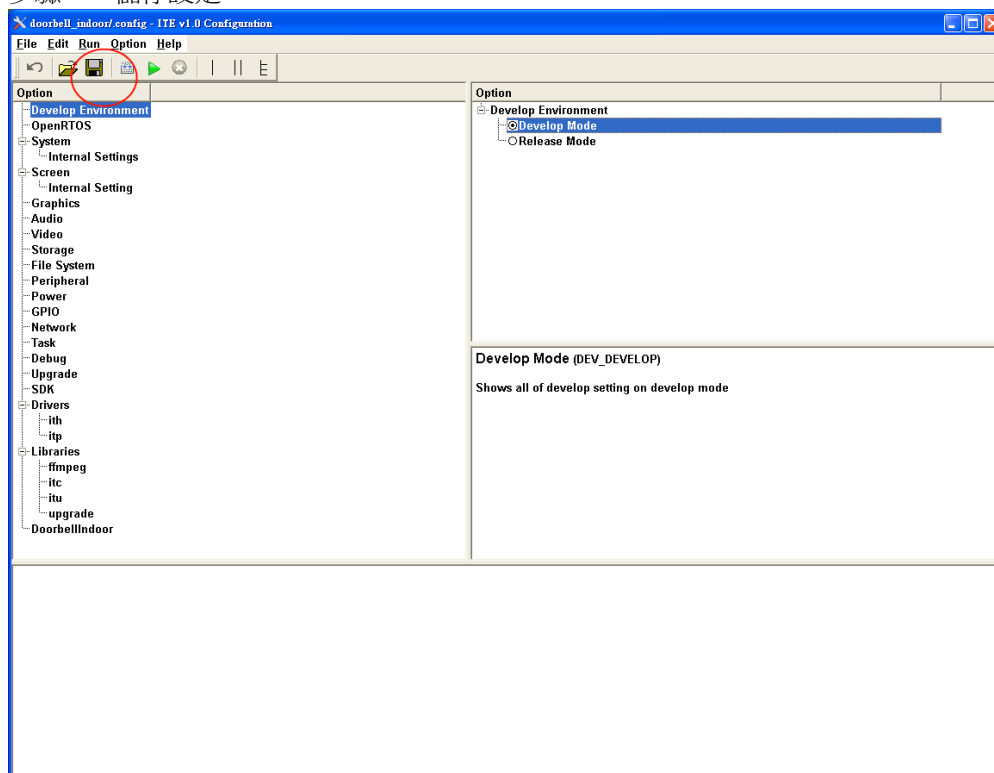
2.2 儲存組態說明

前一章節大概說明了組態設定如何操作，如欲儲存詳細的組態說明，可依下列的步驟：

步驟一：將 Option->Output kconfig.xml 打勾




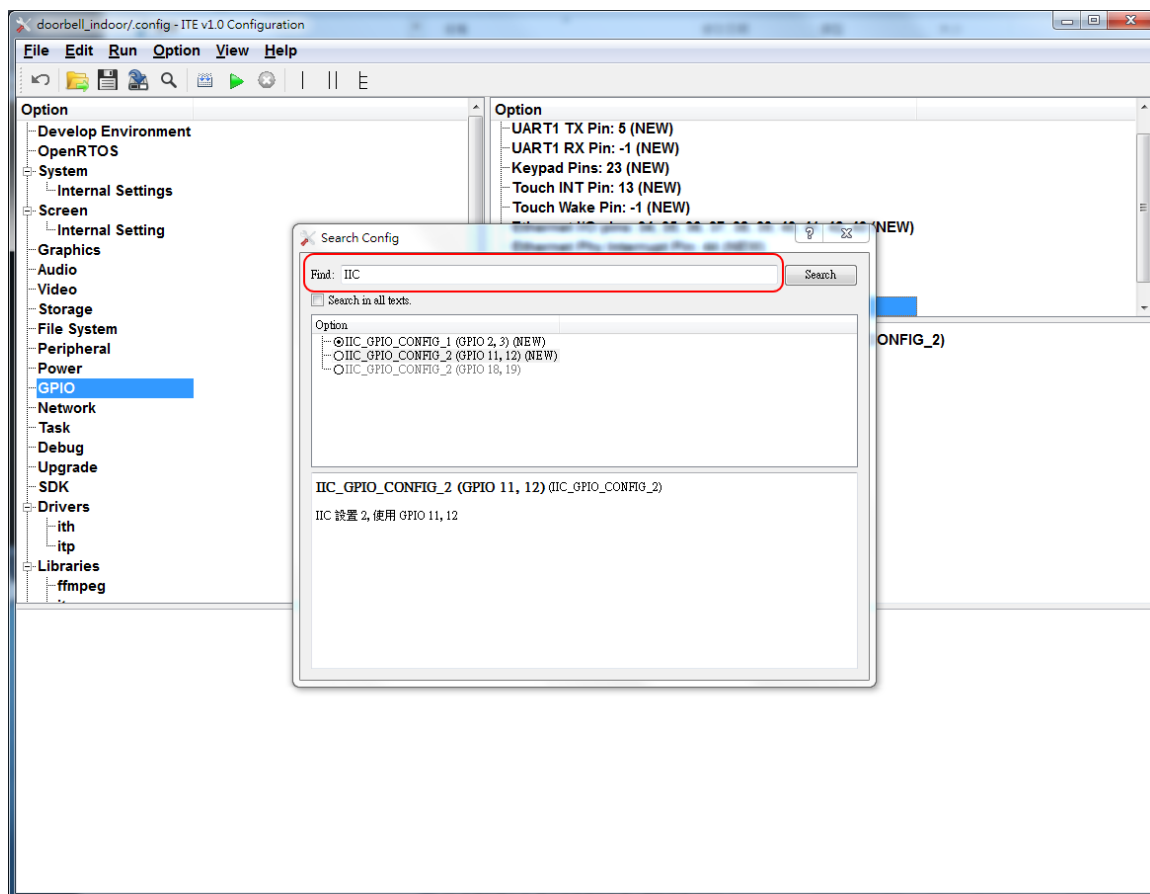
步驟二：儲存設定



會在 build/openrtos 目錄下產生一個 kconfig.xml 檔，以 Excell 打開，就會有 Kconfig 的樹狀結構資料，並有每個項目說明。

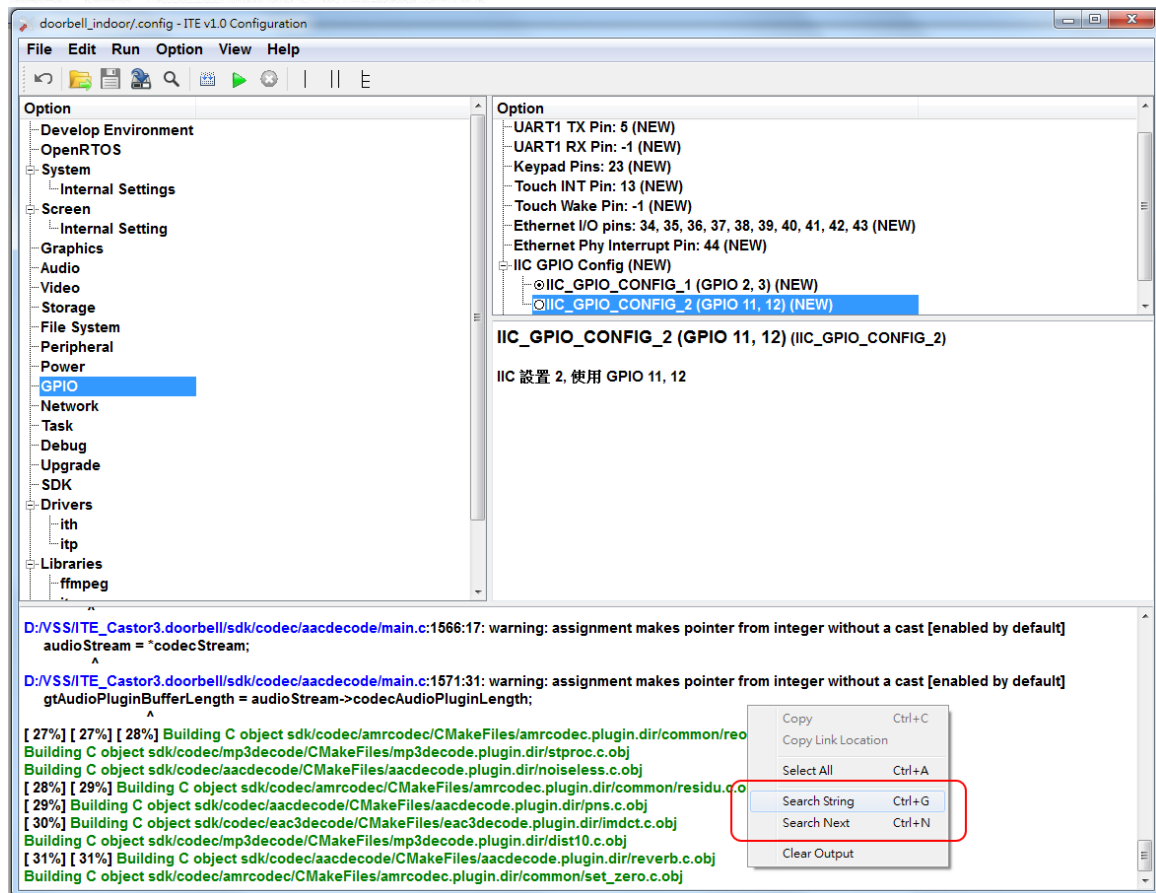
2.3 搜尋組態

在工具列按下 ，或者使用 **Ctrl-F** 組合鍵，會開啟一個視窗，在這個視窗輸入要搜尋的關鍵
字，可以搜尋 **Kconfig** 裡面與此關鍵相關的設定。

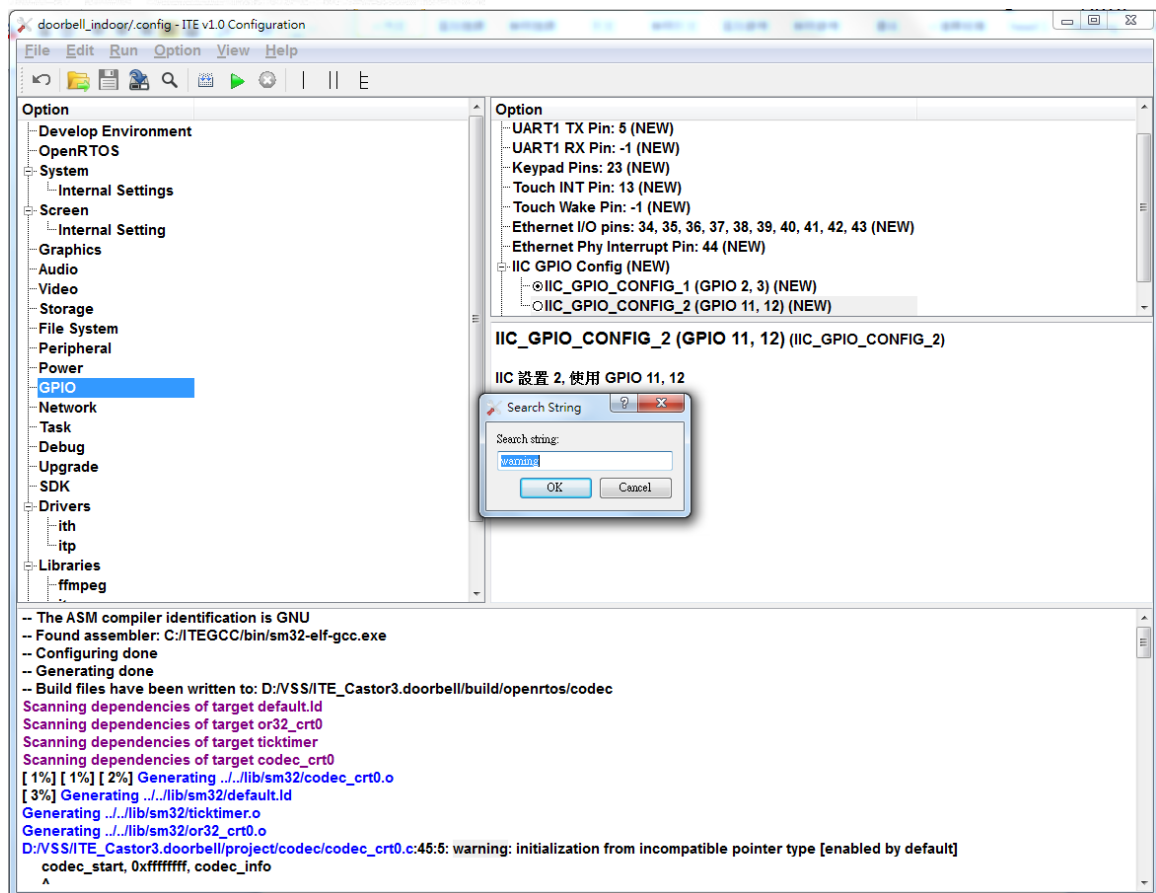


2.4 搜尋輸出視窗

開始建置專案之後，會在建置專案輸出視窗顯示建置的過程。在此視窗中按下滑鼠右鍵，可以叫
出操作 **menu**。

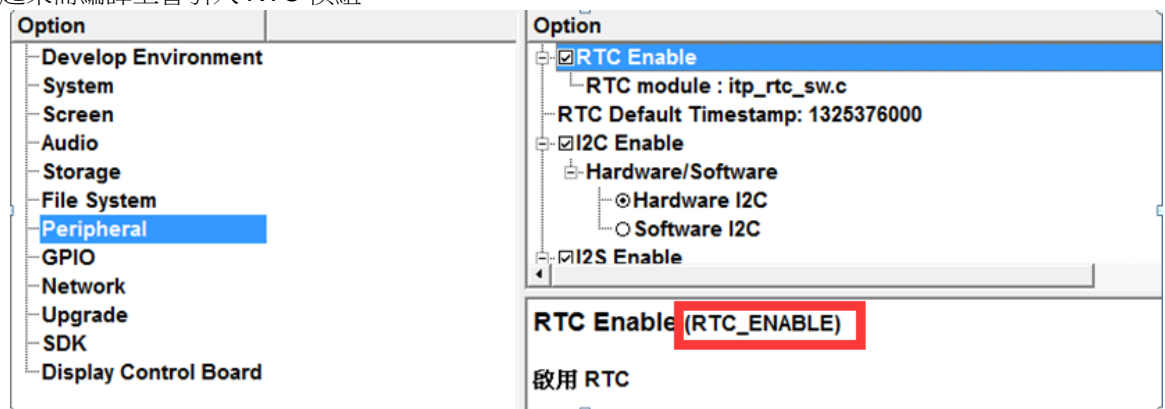


如果想要搜尋輸出視窗的某個字串，按下組合鍵 **Ctrl-G** 輸入欲搜尋字串，組合鍵 **Ctrl-N** 則搜尋下一個符合的字串。



2.5 Menu 與程式 macro 對應

組態設定與原代碼之間是利用 macro 定義來轉換，以 RTC 舉例，組態說明上會有關鍵字 `RTC_ENABLE` 此關鍵字在 build 時會定義 `CFG_RTC_ENABLE` 這個宏(macro) 讓這個宏會被定義起來而編譯上會引入 RTC 模組



由 `\sdk\driver\itp\itp_init_openrtos.c`

```
#ifndef CFG_RTC_ENABLE
    itpRegisterDevice(ITP_DEVICE_RTC, &itpDeviceRtc);
    ioctl(ITP_DEVICE_RTC, ITP_IOCTL_INIT, NULL);
#endif // CFG_RTC_ENABLE
```

我們可以清楚看到當 `CFG_RTC_ENABLE` 啟用時,系統註冊了 RTC 的模組。

3. 選項功能說明

3.1 System

Option	Option
Develop Environment	CPU type (NEW)
System	⊗ FA626 (NEW)
Screen	⊗ SM32 (NEW)
Audio	Chip Package (NEW)
Storage	⊗ IT9079 (NEW)
File System	⊗ IT9850 (NEW)
Peripheral	⊗ IT9910 (NEW)
GPIO	⊗ IT9920 (NEW)
Network	RAM Size: 0x1000000 (NEW)
Upgrade	RAM initial script : IT9079A1_Initial_DDR2_Mem_tiling_pitch2048_360MHZ.scr (NEW)
SDK	Font file name : WenQuanYiMicroHeiMono.ttf (NEW)
Display Control Board	<input checked="" type="checkbox"/> Watch Dog enable (NEW)
	(10) Watch Dog timeout (NEW)
	(1) Watch Dog refresh interval (NEW)
	<input type="checkbox"/> Watch Dog interrupt enable (NEW)

System: Cpu type, chip package, ram size , memory script 等, wizard 會自動針對不同 project 設定完畢,適用設定皆經過測試驗證,不建議開發者自行調整.

3.2 Screen

Screen 選項主要為顯示螢幕上的細節, 設定 LCD 相關設定可參考 <..\SDK 程式開發說明\drivers\LCD\ITE SDK-LCD 模組開發指南.docx>

LCD 背光設定可分 10 階的 duty cycle. 其中 cycle 平率與 duty 值都可由使用者自行定義

Option	Option
Develop Environment	<input checked="" type="checkbox"/> LCD enable (NEW)
System	LCD width: 800 (NEW)
Screen	LCD height: 480 (NEW)
Audio	LCD pitch: 1600 (NEW)
Storage	LCD Bytes-Per-Pixel: 2 (NEW)
File System	LCD/TV out initial script : lcd_800_480_innolux_7inch_888.txt.in (NEW)
Peripheral	<input checked="" type="checkbox"/> Initialize LCD on booting (NEW)
GPIO	LCD booting background color: 0x000000 (NEW)
Network	LCD booting bitmap : logo.bmp (NEW)
Upgrade	<input checked="" type="checkbox"/> Backlight Enable (NEW)
SDK	Backlight frequency: 100000 (NEW)
Display Control Board	Backlight duty cycles of every levels: 95, 92, 88, 82, 75, 65, 55, 40, 25, 5 (NEW)
	Backlight default duty cycle: 5 (NEW)
	<input type="checkbox"/> STN LCD Enable (NEW)
	Screen

3.3 Audio

Audio 為系統 audio dac 相關的設定詳情可參考

<..\SDK 程式開發說明\drivers\audio\ITE SDK-Audio Codec 模組開發指南.docx>

Option	Option
Develop Environment	<input checked="" type="checkbox"/> Audio Enable (NEW)
System	Audio DAC module : itp_dac_wm8960.c (NEW)
Screen	Echo Cancellation Delay: 0 (NEW)
Audio	Speaker Gain Set: 0 (NEW)
Storage	Mic Gain Set: 1 (NEW)
File System	<input checked="" type="checkbox"/> Speaker Equalizer Enable (NEW)
Peripheral	Equalizer Speaker Gain Set: NULL (NEW)
GPIO	<input type="checkbox"/> MIC Equalizer Enable (NEW)
Network	<input type="checkbox"/> Sound default set (NEW)
Upgrade	①wm8960 (NEW)
SDK	①alc5616 (NEW)
Display Control Board	①alc5616_hdk0401 (NEW)
	<input type="checkbox"/> Single Channel Noise Reduction (NEW)
	<input type="checkbox"/> G.711 A-Law Codec (NEW)
	<input type="checkbox"/> G.711 u-Law Codec (NEW)
	<input checked="" type="checkbox"/> compress audio plugin (NEW)
	<input type="checkbox"/> Audio mgr
	<input type="checkbox"/> Audio mgr m4a (NEW)
	<input type="checkbox"/> Audio mgr wav hd (NEW)
	<input type="checkbox"/> Audio mgr lrc (NEW)
	<input type="checkbox"/> Audio mgr resample (NEW)
	Audio Enable (AUDIO_ENABLE)
	啟用 audio 的功能。

3.4 Storage

Storage: 儲存設備，系統儲存設備可有 NOR, USB, SD 等 由此勾選啟用該軟體功能。

Option	Option
Develop Environment	<input checked="" type="checkbox"/> NOR Device (NEW)
System	NOR cache size: 0x40000 (NEW)
Screen	NOR cache flush interval (sec): 0 (NEW)
Audio	<input type="checkbox"/> NOR need to share GPIO pin(s) (NEW)
Storage	<input checked="" type="checkbox"/> SD0 Device (NEW)
File System	<input type="checkbox"/> SD0 as static device (NEW)
Peripheral	<input type="checkbox"/> SD1 Device (NEW)
GPIO	<input type="checkbox"/> RAM Disk Device (NEW)
Network	<input checked="" type="checkbox"/> USB Mass Storage Class (NEW)
Upgrade	<input type="checkbox"/> USB Attached SCSI (NEW)
SDK	
Display Control Board	
	NOR cache size (NOR_CACHE_SIZE)
	設定 NOR 的快取大小，必須是 64K 的倍數，如果設 0 則停用快取。
	64k: 0x10000
	128k: 0x20000
	256k: 0x40000
	512k: 0x80000
	1M: 0x100000

3.5 FileSystem

FileSystem: 系統的檔案管理部分為 FAT32 並可分割為多個 drive 其中的分割與規劃可以 [..SDK 程式開發說明\system\ITE SDK-系統設計參考手冊.docx](#) 中的 內部儲存空間布局 章節。

Option	Option
Develop Environment System Screen Audio Storage File System Peripheral GPIO Network Upgrade SDK Display Control Board	<input checked="" type="checkbox"/> FAT File System (NEW) <input type="checkbox"/> NTFS File System (NEW) NOR reserved size: 0x300000 (NEW) <input checked="" type="checkbox"/> NOR disk partition 0 (NEW) The partition 0 size of NOR disk: 0x800000 (NEW) <input checked="" type="checkbox"/> NOR disk partition 1 (NEW) The partition 1 size of NOR disk: 0xA0000 (NEW) <input checked="" type="checkbox"/> NOR disk partition 2 (NEW) The partition 2 size of NOR disk: 0 (NEW) <input type="checkbox"/> NOR disk partition 3 (NEW) The drive of private disk partition: A (NEW) The drive of public disk partition: B (NEW) The drive of temporary disk partition: C (NEW) The drive of private disk partition (PRIVATE_DRIVE) 私有磁碟機的磁碟機代號。

3.6 Peripheral

系統透過 spi/iic/uart/usb 等介面等增加外掛周邊，介面上的使用可參考 [..\SDK 程式開發說明\drivers\ITE SDK-UART / SPI / I2C 介面開發指南_modified.docx](#)，介面選定後利用此菜單進行軟體啟用勾選。

Option	Option
Develop Environment System Screen Audio Storage File System Peripheral GPIO Network Upgrade SDK Display Control Board	<input checked="" type="checkbox"/> RTC Enable (NEW) RTC Default Timestamp: 1325376000 (NEW) <input checked="" type="checkbox"/> I2C Enable (NEW) <input checked="" type="checkbox"/> I2S Enable (NEW) <input checked="" type="checkbox"/> SPI Enable (NEW) <input type="checkbox"/> Wiegand Enable (NEW) <input type="checkbox"/> TV encoder Enable (NEW) <input type="checkbox"/> CAPTURE module Enable (NEW) <input type="checkbox"/> GPIO Expander Enable (NEW) <input type="checkbox"/> UART0 Enable (NEW) <input checked="" type="checkbox"/> UART1 Enable (NEW) <input type="checkbox"/> RS485_0 Enable (NEW) <input type="checkbox"/> RS485_1 Enable (NEW) <input type="checkbox"/> SWUART Codec Enable (NEW) <input checked="" type="checkbox"/> USB0 Enable (NEW) <input type="checkbox"/> USB1 Enable (NEW) <input type="checkbox"/> IRDA Enable (NEW) <input type="checkbox"/> IR Enable (NEW) <input checked="" type="checkbox"/> Keypad Enable (NEW) <input checked="" type="checkbox"/> Touch Enable (NEW) <input type="checkbox"/> Battery Enable <input type="checkbox"/> G-Sensor Enable (NEW) <input type="checkbox"/> Headset available (NEW) <input type="checkbox"/> Speaker available (NEW) <input type="checkbox"/> Amplifier available (NEW) <input type="checkbox"/> LED available (NEW) <input type="checkbox"/> Switch button available (NEW) <input type="checkbox"/> Tuner available (NEW) <input type="checkbox"/> FM2018 available (NEW) <input type="checkbox"/> AUDIOAMP available (NEW) <input type="checkbox"/> SENSOR Enable (NEW) <input type="checkbox"/> Dual stream Enable (NEW) <input type="checkbox"/> USB HID enable (NEW)

3.7 Gpio

系統 GPIO 的選用，各模組都有其選定的 GPIO 若有更改需求請在此調整，例如：觸控模組中，觸控中斷腳原本為 Touch Int Pins: 13，即使用 GPIO13 腳作為中斷。改變其數字可改變對應的 GPIO 腳。若有 GPIO 設定上的使用與需求可參考 [..\SDK 程式開發說明\drivers\gpio\ITE SDK-GPIO 模組開發指南.docx](#)

Option	Option
Develop Environment System Screen Audio Storage File System GPIO Network Upgrade SDK Display Control Board	SD0/MSxD Card Detect Pin: 21 (NEW) SD0/MSxD Power Enable Pin: 22 (NEW) SD0 Write Protect Pin: -1 (NEW) Backlight PWM Pin: 4 (NEW) UART1 TX Pin: 5 (NEW) UART1 RX Pin: -1 (NEW) Keypad Pins: 23 (NEW) Touch INT Pin: 13 (NEW) Touch Wake Pin: -1 (NEW) Ethernet I/O pins: 34, 35, 36, 37, 38, 39, 40, 41, 42, 43 (NEW) Ethernet Phy Interrupt Pin: 44 (NEW) IIC GPIO Config (NEW) IIC_GPIO_CONFIG_1 (GPIO 2, 3) (NEW) IIC_GPIO_CONFIG_2 (GPIO 11, 12) (NEW) <input checked="" type="checkbox"/> I2S_USE_GPIO_MODE_2 (NEW)

3.8 NetWork

系統加掛網路晶片後可在此菜單內勾選需要設定的功能，網路部分可支援的網卡與網路相關設定會歸類在此處詳細設定與功能可參考[.SDK 程式開發說明\drivers\ethernet\ITE SDK-ethernet 模組開發指南.docx](#)

Option	Option
Develop Environment	<input type="checkbox"/> Enable Network (NEW)
System	<input type="checkbox"/> Enable Ethernet module
Screen	External device type (NEW)
Audio	<input type="radio"/> RTL8201FL (NEW)
Storage	<input type="radio"/> RTL8304MB (NEW)
File System	Ethernet PHY's address: 0 (NEW)
Peripheral	<input checked="" type="checkbox"/> Enable Ethernet link interrupt (NEW)
GPIO	<input type="checkbox"/> Enable Ethernet Wake on Lan support (NEW)
Network	<input checked="" type="checkbox"/> Random MAC address (NEW)
Upgrade	<input checked="" type="checkbox"/> MAC address data is stored in static storage (NEW)
SDK	Position of MAC address data: 0x70000 (NEW)
Display Control Board	MAC address data location (NEW)
	<input type="radio"/> MAC address data in NOR (NEW)
	<input type="radio"/> MAC address data in SD0 (NEW)
	<input checked="" type="checkbox"/> Upgrade MAC address to storage if not exist (NEW)
	MAC address verify number: IT (NEW)
	<input type="checkbox"/> Enable Ethernet DHCP (NEW)
	<input type="checkbox"/> Enable Ethernet AUTOIP (NEW)
	Ethernet default IP address: 192.168.1.1 (NEW)
	Ethernet default netmask: 255.255.255.0 (NEW)
	Ethernet default gateway: 192.168.1.254 (NEW)
	Ethernet poll interval (ms): 50 (NEW)
	Ethernet count: 1 (NEW)

3.9 Upgrade

Upgrade:系統在更新 firmware 時，對應不同情況需要微調的參數皆可在此處調整。包括 pkg 名稱與細節部分可在此處調整。

Option	Option
Develop Environment	<input checked="" type="checkbox"/> Upgrade Bootloader (NEW)
System	<input type="checkbox"/> Bootloader is in external project (NEW)
Screen	<input checked="" type="checkbox"/> Upgrade Image (NEW)
Audio	<input checked="" type="checkbox"/> Upgrade Data (NEW)
Storage	Encrypt key: 0 (NEW)
File System	<input type="checkbox"/> Enter Upgrade mode by press key (NEW)
Peripheral	Upgrade package filename: ITEPKG03.PKG (NEW)
GPIO	Filename list of upgrade packages: ITEPKG03.PKG (NEW)
Network	<input checked="" type="checkbox"/> Force partition (NEW)
Upgrade	<input checked="" type="checkbox"/> Delete package file after upgrade finish or error (NEW)
SDK	Delay time after upgrade finish or error: 10 (NEW)
Display Control Board	USB device detection timeout: 300 (NEW)
	USB drive ready timeout: 8000 (NEW)
	<input type="checkbox"/> Enable upgrade reset factory mode (NEW)
	<input checked="" type="checkbox"/> Generate NOR image (NEW)
	Upgrade package version: 1.0 (NEW)

3.10 SDK

SDK :關於整個 SDK 環境的設定。

Option	Option
Develop Environment	<input type="checkbox"/> Build Type (NEW)
System	<input type="radio"/> Debug (NEW)
Screen	<input type="radio"/> DebugRel (NEW)
Audio	<input type="radio"/> Release (NEW)
Storage	<input type="radio"/> MinSizeRel (NEW)
File System	Version Major: 0 (NEW)
Peripheral	Version Minor: 0 (NEW)
GPIO	Version Patch: 1 (NEW)
Network	Version Custom: 0 (NEW)
Upgrade	System Name: ITE Display Control Board (NEW)
SDK	Manufacturer: www.ite.com.tw (NEW)
Display Control Board	<input type="checkbox"/> Generate documents (NEW)
	<input type="checkbox"/> Generate building package environment (NEW)
	<input type="checkbox"/> Generate Version Tweak (NEW)

3.11 My Project Template

依 project 不同,為此 project 下相對應的設定.例如系統 itu 的名稱與硬體版本等需要因應的選項都會加在此處.藉由名稱也可知道此 SDK 是基於何模板初建立的

Option	Option
<div><div>Develop Environment</div><div>System</div><div>Screen</div><div>Audio</div><div>Storage</div><div>File System</div><div>Peripheral</div><div>GPIO</div><div>Network</div><div>Upgrade</div><div>SDK</div><div>Display Control Board</div></div>	<div><div><input type="checkbox"/> Checking files' CRC on booting time (NEW)</div><div>Hardware version: V2 (NEW)</div><div><input type="checkbox"/> Screenshot is enabled or not (NEW)</div><div>Web server port: 80 (NEW)</div><div>ITU files path: itu (NEW)</div></div>