



UI PIN-CTRL Tool

Revision History

Revision	Date	Author	Changes
0.1	2018/8/14	KH Chang	First draft
0.2	2018/10/16	KH Chang	Add 3.9 Example
0.3	2018/11/22	KH Chang	Add 3.8 Auto pinmux conflict checking

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1. Overview

此 UI 工具用來讓使用者可以快速建立平台所需的 pinmux table , 設定 pad driving , 以及 GPIO 需要的設定值. 產出編譯程式需要的 configuration 檔案.

2. Features

1. Setting pinmux table
2. Setting Pad driving
3. Setting GPIO

3. Usage

3.1 Files

1. top.csv

從 top.h parsing 出來的 define value, 若此 header file 有更新, 需要 update

2. pad.csv

從 pad.h parsing 出來的 define value, 若此 header file 有更新, 需要 update

3. gpio_def.csv

GPIO default 值.

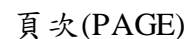
4. top_generator.xlsm

主要 UI tool 介面 (xlsm 代表是具有巨集的 excel file)

5. nvt-na51000-top.dtsi

產出檔案

[Tool 擺放位置]



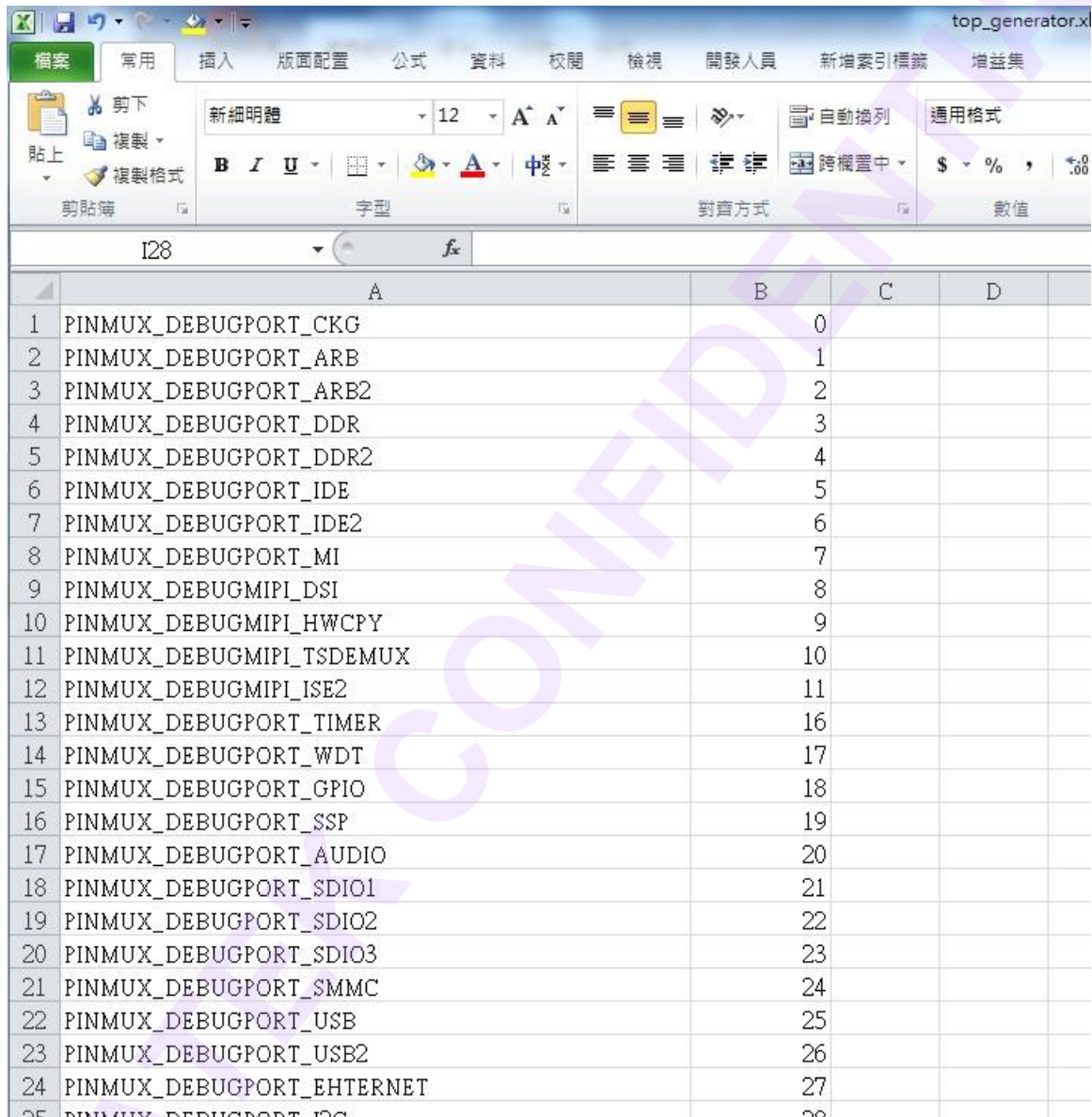
透過此頁面可以設定使用者平台所需要的 `pinmux` 設定

(2) The second page is “PAD”

	A	B	C	D	E	F
1	CGPIO	pin	DRIVINGSINK	PULLDOWN	DIRECTION	OUTPUT
2		CGPIO0	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
3		CGPIO1	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
4		CGPIO2	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
5		CGPIO3	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
6		CGPIO4	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
7		CGPIO5	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
8		CGPIO6	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
9		CGPIO7	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
10		CGPIO8	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
11		CGPIO9	PAD_DRIVINGSINK_6MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
12		CGPIO10	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
13		CGPIO11	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
14		CGPIO12	PAD_DRIVINGSINK_4MA	PAD_PULLDOWN	GPIO_DIR_INPUT	LOW
15		CGPIO13	PAD_DRIVINGSINK_4MA	PAD_PULLDOWN	GPIO_DIR_INPUT	LOW
16		CGPIO14	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
17		CGPIO15	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
18		CGPIO16	PAD_DRIVINGSINK_20MA	PAD_PULLDOWN	GPIO_DIR_INPUT	LOW
19		CGPIO17	PAD_DRIVINGSINK_15MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
20		CGPIO18	PAD_DRIVINGSINK_15MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
21		CGPIO19	PAD_DRIVINGSINK_15MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
22		CGPIO20	PAD_DRIVINGSINK_15MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
23		CGPIO21	PAD_DRIVINGSINK_15MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
24		CGPIO22	PAD_DRIVINGSINK_20MA	PAD_PULLDOWN	GPIO_DIR_INPUT	LOW
25		CGPIO23	PAD_DRIVINGSINK_15MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
26		CGPIO24	PAD_DRIVINGSINK_15MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
27		CGPIO25	PAD_DRIVINGSINK_15MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
28		CGPIO26	PAD_DRIVINGSINK_15MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
29		CGPIO27	PAD_DRIVINGSINK_15MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
30		CGPIO28	PAD_DRIVINGSINK_6MA	PAD_PULLDOWN	GPIO_DIR_INPUT	LOW
31		CGPIO29	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
32		CGPIO30	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
33		CGPIO31	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
34		CGPIO32	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
35		CGPIO33	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
36						

透過此頁面可以設定使用者平台所需要的 Pad driving 還有 GPIO setting value

(3) The third page is “TOP define”



	A	B	C	D
1	PINMUX_DEBUGPORT_CKG	0		
2	PINMUX_DEBUGPORT_ARB	1		
3	PINMUX_DEBUGPORT_ARB2	2		
4	PINMUX_DEBUGPORT_DDR	3		
5	PINMUX_DEBUGPORT_DDR2	4		
6	PINMUX_DEBUGPORT_IDE	5		
7	PINMUX_DEBUGPORT_IDE2	6		
8	PINMUX_DEBUGPORT_MI	7		
9	PINMUX_DEBUGMIPI_DSI	8		
10	PINMUX_DEBUGMIPI_HWCOPY	9		
11	PINMUX_DEBUGMIPI_TSDEMUX	10		
12	PINMUX_DEBUGMIPI_ISE2	11		
13	PINMUX_DEBUGPORT_TIMER	16		
14	PINMUX_DEBUGPORT_WDT	17		
15	PINMUX_DEBUGPORT_GPIO	18		
16	PINMUX_DEBUGPORT_SSP	19		
17	PINMUX_DEBUGPORT_AUDIO	20		
18	PINMUX_DEBUGPORT_SDIO1	21		
19	PINMUX_DEBUGPORT_SDIO2	22		
20	PINMUX_DEBUGPORT_SDIO3	23		
21	PINMUX_DEBUGPORT_SMMC	24		
22	PINMUX_DEBUGPORT_USB	25		
23	PINMUX_DEBUGPORT_USB2	26		
24	PINMUX_DEBUGPORT_EHTERNET	27		
25	PINMUX_DEBUGPORT_I2C	28		

此頁面載入 top.csv 的 define value, 作為後續運算產出的參考值 (使用者不要改動此頁面)

(4) The fourth page is “PAD define”

	A	B
1	PAD_NONE	0
2	PAD_PULLDOWN	1
3	PAD_PULLUP	2
4	PAD_KEEPER	3
5		
6	PAD_SLEWRATE_FAST	0
7	PAD_SLEWRATE_SLOW	1
8		
9	PAD_DRIVINGSINK_2P5MA	1
10	PAD_DRIVINGSINK_5MA	2
11	PAD_DRIVINGSINK_7P5MA	4
12	PAD_DRIVINGSINK_10MA	8
13	PAD_DRIVINGSINK_12P5MA	16
14	PAD_DRIVINGSINK_15MA	32
15	PAD_DRIVINGSINK_17P5MA	64
16	PAD_DRIVINGSINK_20MA	128
17	PAD_DRIVINGSINK_25MA	256
18	PAD_DRIVINGSINK_30MA	512
19	PAD_DRIVINGSINK_35MA	1024
20	PAD_DRIVINGSINK_40MA	2048
21	PAD_DRIVINGSINK_4MA	4096
22	PAD_DRIVINGSINK_6MA	8192
23	PAD_DRIVINGSINK_8MA	16384
24	PAD_DRIVINGSINK_16MA	32768
25		
26	PAD_PIN_NOT_EXIST	15
27	PAD_PIN_CGPIO_BASE	0

此頁面載入 pad.csv 的 define value, 作為後續運算產出的參考值 (使用者不要改動此頁面)

3.3 Load dtsi file

如下圖，使用者可以利用 load，將原本 default 的 dtsi 檔案載入

Step1. 按下 load dtsi

SDIO	SDIO2	SDIO3	NAND	SENSOR
PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_NAND_CFG_NONE	PIN_SENSOR_CFG_NONE
PIN_SDIO_CFG_4BITS	PIN_SDIO_CFG_4BITS	PIN_SDIO_CFG_4BITS	PIN_NAND_CFG_1CS	PIN_SENSOR_CFG_8BITS
PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_NAND_CFG_2CS	PIN_SENSOR_CFG_10BITS
PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_NAND_CFG_SPI_NAND	PIN_SENSOR_CFG_12BITS
PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_NAND_CFG_SPI_NOR	PIN_SENSOR_CFG_MIP1
				PIN_SENSOR_CFG_LVDS
				PIN_SENSOR_CFG_LVDS_VDHD
				PIN_SENSOR_CFG_SHUTTER
				PIN_SENSOR_CFG_MCLK
				PIN_SENSOR_CFG_MCLK2
				PIN_SENSOR_CFG_MES0
				PIN_SENSOR_CFG_MES0_2ND
				PIN_SENSOR_CFG_MES1
				PIN_SENSOR_CFG_MES1_2ND
				PIN_SENSOR_CFG_FLCTR
				PIN_SENSOR_CFG_STROBE
				PIN_SENSOR_CFG_SFCLK
				PIN_SENSOR_CFG_SFCLK_2ND
				PIN_SENSOR_CFG_SF2CLK
				PIN_SENSOR_CFG_SF2CLK_2ND
				PIN_SENSOR_CFG_MES2
				PIN_SENSOR_CFG_MES2_2ND
				PIN_SENSOR_CFG_MES3
				PIN_SENSOR_CFG_MES3_2ND
				PIN_SENSOR_CFG_LOCKN
				PIN_SENSOR_CFG_LOCKN2

Current folder :

D:\work\U\tool\20180814

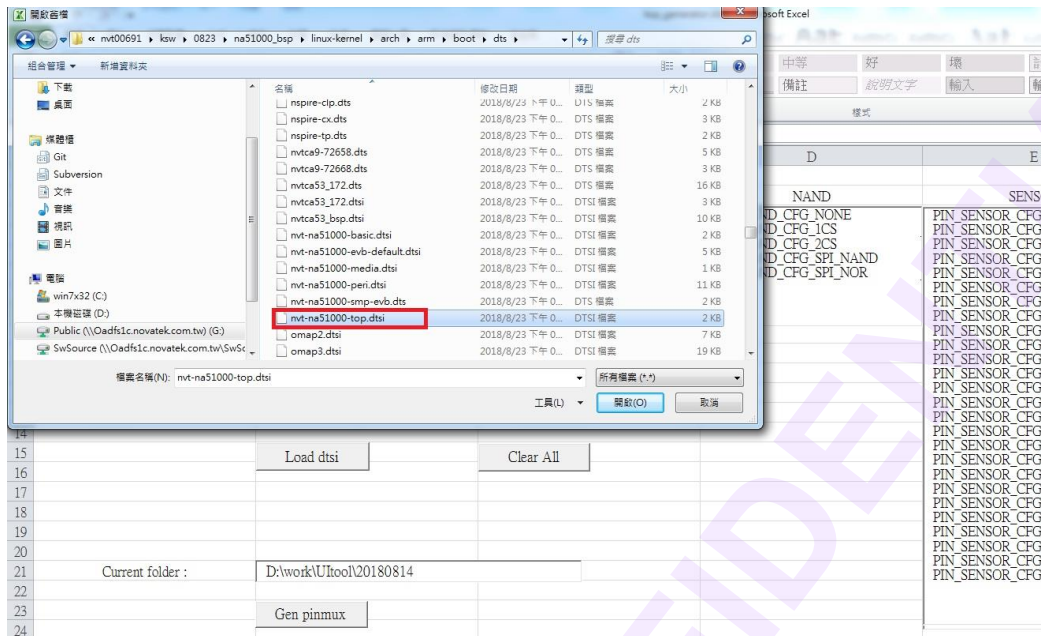
Gen pinmux

Load dtsi

Clear All

Version: 0.1

Step2. 選擇所要載入的 dtsi 檔案



Step3. 選擇dtsi之後, tool 會進行 parsing , 將所取得的設定資訊顯示在 UI 欄位上, 如下圖:

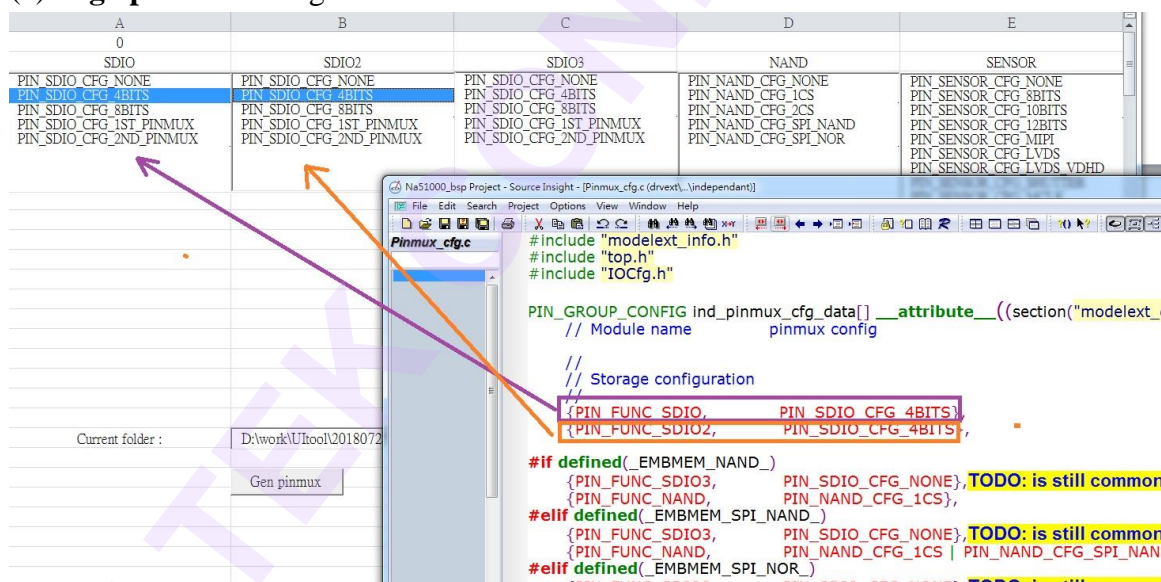
A	B	C	D	E
SDIO	SDIO2	SDIO3	NAND	SENSOR
PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_NAND_CFG_NONE	PIN_SENSOR_CFG_NONE
PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_4BITS	PIN_SDIO_CFG_4BITS	PIN_NAND_CFG_1CS	PIN_SENSOR_CFG_8BITS
PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_NAND_CFG_2CS	PIN_SENSOR_CFG_10BITS
PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_NAND_CFG_SPI_NAND	PIN_SENSOR_CFG_12BITS
PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_NAND_CFG_SPI_NOR	PIN_SENSOR_CFG_10H8
				PIN_SENSOR_CFG_LVDS
				PIN_SENSOR_CFG_LVDS_VDHD
				PIN_SENSOR_CFG_SHUTTER
				PIN_SENSOR_CFG_MCLK
				PIN_SENSOR_CFG_MCLK2
				PIN_SENSOR_CFG_MES0
				PIN_SENSOR_CFG_MES0_2ND
				PIN_SENSOR_CFG_MES1
				PIN_SENSOR_CFG_MES1_2ND
				PIN_SENSOR_CFG_FLCTR
				PIN_SENSOR_CFG_STROBE
				PIN_SENSOR_CFG_SPCLK
				PIN_SENSOR_CFG_SPCLK_2ND
				PIN_SENSOR_CFG_SP2CLK
				PIN_SENSOR_CFG_SP2CLK_2ND
				PIN_SENSOR_CFG_MES2
				PIN_SENSOR_CFG_MES2_2ND
				PIN_SENSOR_CFG_MES3
				PIN_SENSOR_CFG_MES3_2ND
				PIN_SENSOR_CFG_LOCKN
				PIN_SENSOR_CFG_LOCKN2

[Note]

- 目前 default dtsi 檔案位置在 (2018/12/13)
na51000_linux_sdk\configs\cfg_IPCAM1_EVB

3.4 Generate dtsi file

(1) Page pinmux setting



A	B	C	D	E
0	SDIO2	SDIO3	NAND	SENSOR
PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_NAND_CFG_NONE	PIN_SENSOR_CFG_NONE
PIN_SDIO_CFG_4BITS	PIN_SDIO_CFG_4BITS	PIN_SDIO_CFG_4BITS	PIN_NAND_CFG_1CS	PIN_SENSOR_CFG_8BITS
PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_NAND_CFG_2CS	PIN_SENSOR_CFG_10BITS
PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_NAND_CFG_SPI_NAND	PIN_SENSOR_CFG_12BITS
PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_NAND_CFG_SPI_NOR	PIN_SENSOR_CFG_MIP
				PIN_SENSOR_CFG_LVDS
				PIN_SENSOR_CFG_LVDS_VDHD

```

Na51000_bsp Project - Source Insight - [Pinmux_cfg.c (drvext\...\independent)]
File Edit Search Project Options View Window Help
Pinmux_cfg.c
#include "modelext_info.h"
#include "top.h"
#include "IOCfg.h"

PIN_GROUP_CONFIG ind_pinmux_cfg_data[] __attribute__((section("modelext_
// Module name pinmux config

// Storage configuration
{PIN_FUNC_SDIO, PIN_SDIO_CFG_4BITS},
{PIN_FUNC_SDIO2, PIN_SDIO_CFG_4BITS},

#if defined(_EMBMEM_NAND_)
{PIN_FUNC_SDIO3, PIN_SDIO_CFG_NONE}, TODO: is still common
{PIN_FUNC_NAND, PIN_NAND_CFG_1CS},
#elif defined(_EMBMEM_SPI_NAND_)
{PIN_FUNC_SDIO3, PIN_SDIO_CFG_NONE}, TODO: is still common
{PIN_FUNC_NAND, PIN_NAND_CFG_1CS | PIN_NAND_CFG_SPI_NAN
#elif defined(_EMBMEM_SPI_NOR_)
{PIN_FUNC_SDIO3, PIN_SDIO_CFG_NONE}, TODO: is still common

```

根據原本 pinmux_cfg.c 裡面的設定，逐一將設定點選（可多選），如上圖 SDIO 選擇 PIN_SDIO_CFG_4BITS，依此類推，選擇所有需要的設定值

(2) Page pad setting

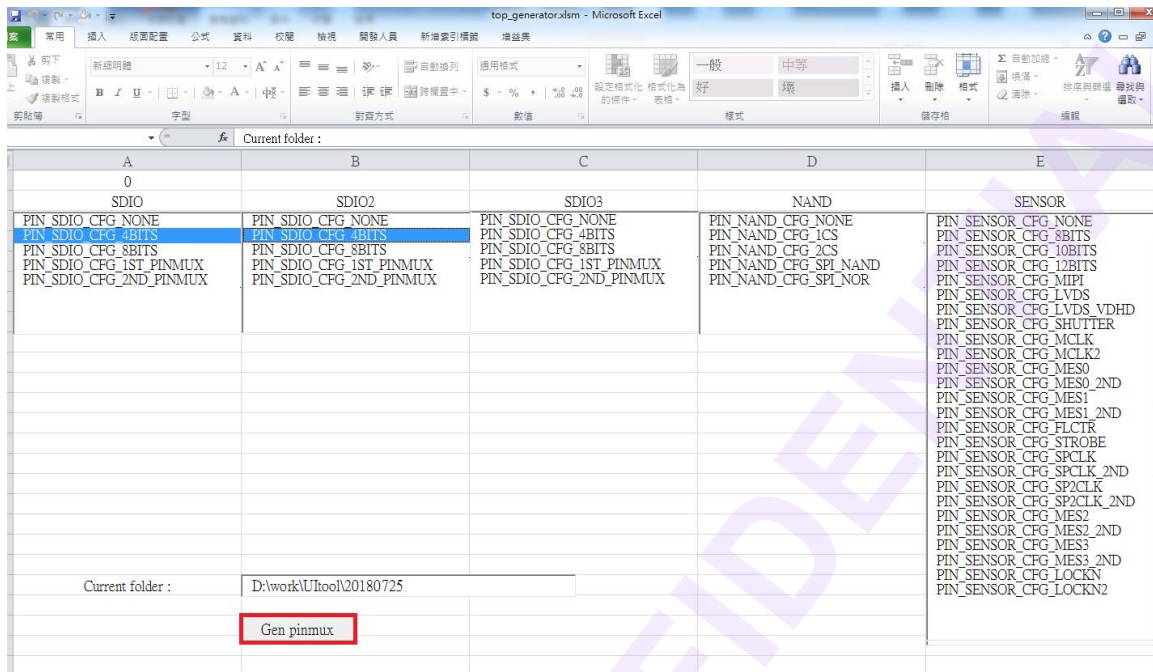
B	C	D	E	F	G	H	I
CGPIO8	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW			
CGPIO9	PAD_DRIVINGSINK_6MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW			
CGPIO10	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW			
CGPIO11	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW			
CGPIO12	PAD_DRIVINGSINK_4MA	PAD_PULLDOWN	GPIO_DIR_INPUT	LOW			
CGPIO13	PAD_DRIVINGSINK_4MA	PAD_PULLDOWN	GPIO_DIR_INPUT	LOW			
CGPIO14	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW			
CGPIO15	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW			
CGPIO16	PAD_DRIVINGSINK_20MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW			
CGPIO17	PAD_DRIVINGSINK_5MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW			
CGPIO18	PAD_DRIVINGSINK_10MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW			
CGPIO19	PAD_DRIVINGSINK_15MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW			
CGPIO20	PAD_DRIVINGSINK_35MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW			
CGPIO21	PAD_DRIVINGSINK_40MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW			
CGPIO22	PAD_DRIVINGSINK_15MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW			
CGPIO23	PAD_DRIVINGSINK_20MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW			
CGPIO24	PAD_DRIVINGSINK_15MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW			
CGPIO25	PAD_DRIVINGSINK_15MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW			
CGPIO26	PAD_DRIVINGSINK_15MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW			
CGPIO27	PAD_DRIVINGSINK_15MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW			
CGPIO28	PAD_DRIVINGSINK_6MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW			

若該平台需要針對部分 pad 調整 driving，可以在此頁面找到所要調整的 pin，然後將所要改的 driving 設定選項改上，如上圖，將 CGPIO16 改成 20mA

pin	DRIVINGSINK	PULLDOWN	DIRECTION	OUTPUT
S_GPIO0	PAD_DRIVINGSINK_6MA	PAD_PULLDOWN	GPIO_DIR_INPUT	LOW
S_GPIO1	PAD_DRIVINGSINK_8MA	PAD_PULLDOWN	GPIO_DIR_INPUT	LOW
S_GPIO2	PAD_DRIVINGSINK_8MA	PAD_PULLDOWN	GPIO_DIR_INPUT	LOW
S_GPIO3	PAD_DRIVINGSINK_8MA	PAD_PULLDOWN	GPIO_DIR_INPUT	LOW
S_GPIO4	PAD_DRIVINGSINK_8MA	PAD_PULLDOWN	GPIO_DIR_OUTPUT	0
S_GPIO5	PAD_DRIVINGSINK_6MA	PAD_PULLDOWN	GPIO_DIR_OUTPUT	0
S_GPIO6	PAD_DRIVINGSINK_8MA	PAD_PULLDOWN	GPIO_DIR_INPUT	LOW
S_GPIO7	PAD_DRIVINGSINK_8MA	PAD_PULLDOWN	GPIO_DIR_INPUT	LOW
S_GPIO8	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
S_GPIO9	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
S_GPIO10	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW
S_GPIO11	PAD_DRIVINGSINK_4MA	PAD_PULLUP	GPIO_DIR_INPUT	LOW

若該平台需要調整 GPIO 設定值，找到對應的 pin 列，然後將需要調整的設定改上，如上圖，將 S_GPIO4 改成 output 值為 0。

(3) 按下按鈕自動產生 nvt-na51000-top.dtsi



The screenshot shows the Microsoft Excel interface for the file 'top_generator.xlsm'. The spreadsheet is organized into columns A through E, representing different hardware components: 0, SDIO, SDIO2, SDIO3, NAND, and SENSOR. Each column contains a list of configuration options, such as 'PIN_SDIO_CFG_NONE', 'PIN_SDIO_CFG_4BITS', 'PIN_SDIO_CFG_8BITS', 'PIN_SDIO_CFG_1ST_PINMUX', and 'PIN_SDIO_CFG_2ND_PINMUX' for the SDIO components. The 'SENSOR' column lists various sensor configurations like 'PIN_SENSOR_CFG_NONE', 'PIN_SENSOR_CFG_8BITS', 'PIN_SENSOR_CFG_10BITS', 'PIN_SENSOR_CFG_12BITS', 'PIN_SENSOR_CFG_MIPI', 'PIN_SENSOR_CFG_LVDS', 'PIN_SENSOR_CFG_LVDS_VDHD', 'PIN_SENSOR_CFG_SHUTTER', 'PIN_SENSOR_CFG_MCLK', 'PIN_SENSOR_CFG_MCLK2', 'PIN_SENSOR_CFG_MES0', 'PIN_SENSOR_CFG_MES0_2ND', 'PIN_SENSOR_CFG_MES1', 'PIN_SENSOR_CFG_MES1_2ND', 'PIN_SENSOR_CFG_FLCTR', 'PIN_SENSOR_CFG_STROBE', 'PIN_SENSOR_CFG_SPCLK', 'PIN_SENSOR_CFG_SPCLK_2ND', 'PIN_SENSOR_CFG_SP2CLK', 'PIN_SENSOR_CFG_SP2CLK_2ND', 'PIN_SENSOR_CFG_MES2', 'PIN_SENSOR_CFG_MES2_2ND', 'PIN_SENSOR_CFG_MES3', 'PIN_SENSOR_CFG_MES3_2ND', 'PIN_SENSOR_CFG_LOCKN', and 'PIN_SENSOR_CFG_LOCKN2'. At the bottom of the spreadsheet, there is a 'Current folder' field with the path 'D:\work\U\tool\20180725' and a button labeled 'Gen pinmux' which is highlighted with a red rectangle.

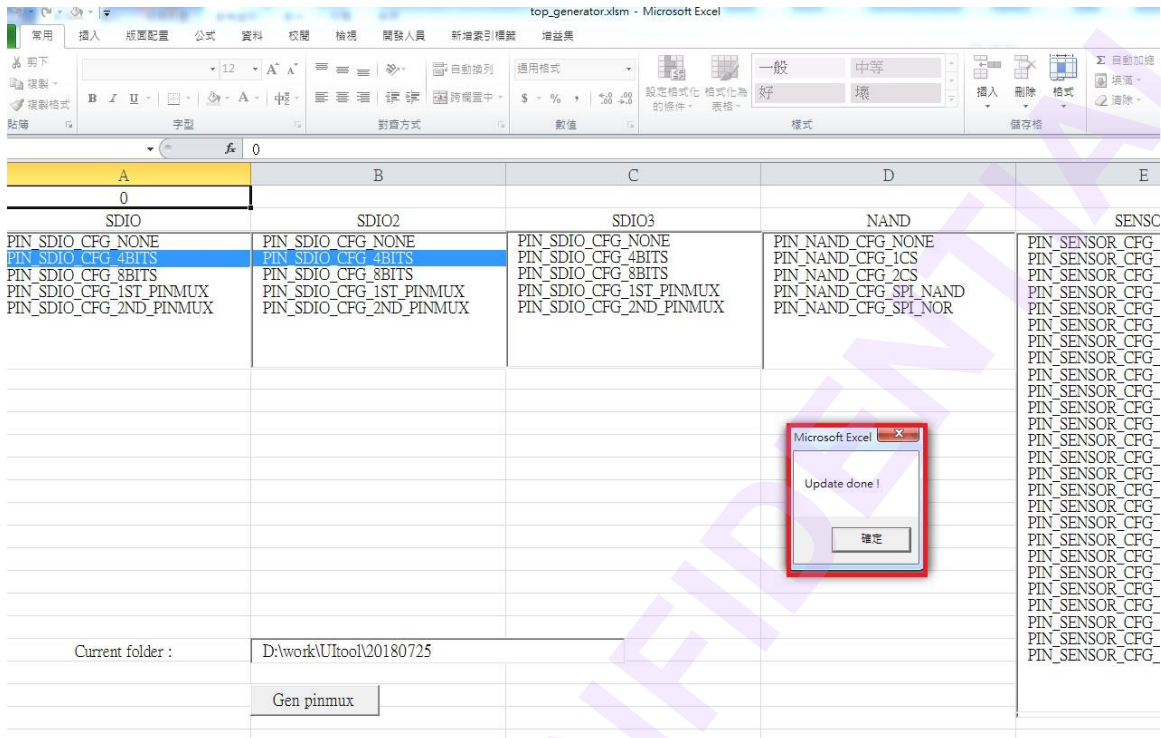
A	B	C	D	E
0	SDIO	SDIO2	SDIO3	NAND
PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_NAND_CFG_NONE	PIN_SENSOR_CFG_NONE
PIN_SDIO_CFG_4BITS	PIN_SDIO_CFG_4BITS	PIN_SDIO_CFG_4BITS	PIN_NAND_CFG_1CS	PIN_SENSOR_CFG_8BITS
PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_NAND_CFG_2CS	PIN_SENSOR_CFG_10BITS
PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_NAND_CFG_SPI_NAND	PIN_SENSOR_CFG_12BITS
PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_NAND_CFG_SPI_NOR	PIN_SENSOR_CFG_MIPI
				PIN_SENSOR_CFG_LVDS
				PIN_SENSOR_CFG_LVDS_VDHD
				PIN_SENSOR_CFG_SHUTTER
				PIN_SENSOR_CFG_MCLK
				PIN_SENSOR_CFG_MCLK2
				PIN_SENSOR_CFG_MES0
				PIN_SENSOR_CFG_MES0_2ND
				PIN_SENSOR_CFG_MES1
				PIN_SENSOR_CFG_MES1_2ND
				PIN_SENSOR_CFG_FLCTR
				PIN_SENSOR_CFG_STROBE
				PIN_SENSOR_CFG_SPCLK
				PIN_SENSOR_CFG_SPCLK_2ND
				PIN_SENSOR_CFG_SP2CLK
				PIN_SENSOR_CFG_SP2CLK_2ND
				PIN_SENSOR_CFG_MES2
				PIN_SENSOR_CFG_MES2_2ND
				PIN_SENSOR_CFG_MES3
				PIN_SENSOR_CFG_MES3_2ND
				PIN_SENSOR_CFG_LOCKN
				PIN_SENSOR_CFG_LOCKN2

Current folder : D:\work\U\tool\20180725

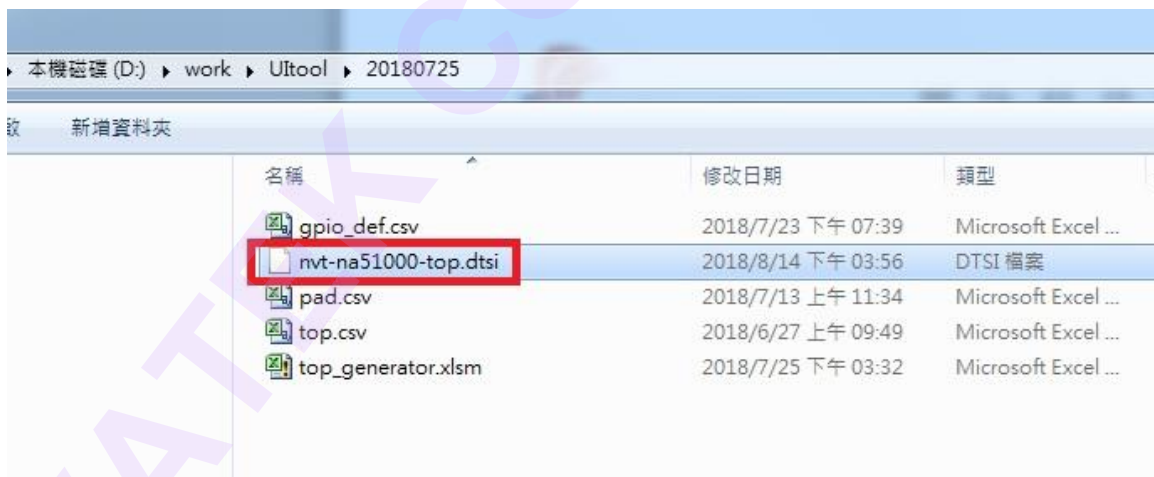
Gen pinmux

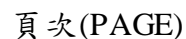
完成上述 pinmux , pad 兩個頁面設定後，在 pinmux 頁面按下 [Gen pinmux] 按鈕 (如上圖紅色框). 則會在該 tool 所在目錄下,自動產出 dtsi 檔案

(4) 完成



完成後,會彈出 update done 視窗. 並產出 dtsi 檔案



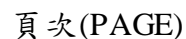


若是想要清除所有設定，可以按下 **Clear All**，將目前所有設定值清除。

3.6 Update device tree

根據 3.3 說明, UI tool 產出 dtsi 檔案後, 可以透過下列方式更新

1. make cfg (生成 nvt-na51000-xxx.dtb)
2. make pack (更新到 dtb partition 即可)



在 Pinmux 頁面左下角顯示的是目前 UI tool 的版本號

0				
SDIO	SDIO2	SDIO3	NAND	SENSOR
PIN_SDIO_CFG_NONE PIN_SDIO_CFG_4BITS PIN_SDIO_CFG_8BITS PIN_SDIO_CFG_1ST_PINMUX PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_NONE PIN_SDIO_CFG_4BITS PIN_SDIO_CFG_8BITS PIN_SDIO_CFG_1ST_PINMUX PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_NONE PIN_SDIO_CFG_4BITS PIN_SDIO_CFG_8BITS PIN_SDIO_CFG_1ST_PINMUX PIN_SDIO_CFG_2ND_PINMUX	PIN_NAND_CFG_NONE PIN_NAND_CFG_1CS PIN_NAND_CFG_2CS PIN_NAND_CFG_SPI_NAND PIN_NAND_CFG_SPI_NOR	PIN_SENSOR_CFG_NONE PIN_SENSOR_CFG_8BITS PIN_SENSOR_CFG_10BITS PIN_SENSOR_CFG_12BITS PIN_SENSOR_CFG_MIP1 PIN_SENSOR_CFG_LVDS PIN_SENSOR_CFG_LVDS_VDHD PIN_SENSOR_CFG_SHUTTER PIN_SENSOR_CFG_MCLK PIN_SENSOR_CFG_MCLK2 PIN_SENSOR_CFG_MES0 PIN_SENSOR_CFG_MES0_2ND PIN_SENSOR_CFG_MES1 PIN_SENSOR_CFG_MES1_2ND PIN_SENSOR_CFG_FLCTR PIN_SENSOR_CFG_STROBE PIN_SENSOR_CFG_SPCLK PIN_SENSOR_CFG_SPCLK_2ND PIN_SENSOR_CFG_SP2CLK PIN_SENSOR_CFG_SP2CLK_2ND PIN_SENSOR_CFG_MES2 PIN_SENSOR_CFG_MES2_2ND PIN_SENSOR_CFG_MES3 PIN_SENSOR_CFG_MES3_2ND PIN_SENSOR_CFG_LOCKN PIN_SENSOR_CFG_LOCKN2
	Load dtsti	Clear All		
Current folder :	D:\work\Ufotool\20180814			
	Gen pinmux			
Version: 0.1				

3.8 Auto pinmux conflict checking

(1) 新增 “Show” button. 按下按鈕後，顯示目前選擇到的相關 pin name，如下圖(2)

0	SDIO2	SDIO3	NAND	SENSOR
PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_NAND_CFG_NONE	PIN_SENSOR_CFG_NONE
PIN_SDIO_CFG_4BITS	PIN_SDIO_CFG_4BITS	PIN_SDIO_CFG_4BITS	PIN_NAND_CFG_1CS	PIN_SENSOR_CFG_8BITS
PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_NAND_CFG_2CS	PIN_SENSOR_CFG_10BITS
PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_NAND_CFG_SPI_NAND	PIN_SENSOR_CFG_12BITS
PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_NAND_CFG_SPI_NOR	PIN_SENSOR_CFG_MIIH
				PIN_SENSOR_CFG_LVDS
				PIN_SENSOR_CFG_LVDS_VDHD
				PIN_SENSOR_CFG_SHUTTER
				PIN_SENSOR_CFG_MCLK
				PIN_SENSOR_CFG_MCLK2
				PIN_SENSOR_CFG_MES0
				PIN_SENSOR_CFG_MES0_2ND
				PIN_SENSOR_CFG_MES1
				PIN_SENSOR_CFG_MES1_2ND
				PIN_SENSOR_CFG_FLCTR
				PIN_SENSOR_CFG_STROBE
				PIN_SENSOR_CFG_SPCLK
				PIN_SENSOR_CFG_SPCLK_2ND
				PIN_SENSOR_CFG_SP2CLK
				PIN_SENSOR_CFG_SP2CLK_2ND
				PIN_SENSOR_CFG_MES2
				PIN_SENSOR_CFG_MES2_2ND
				PIN_SENSOR_CFG_MES3
				PIN_SENSOR_CFG_MES3_2ND
				PIN_SENSOR_CFG_LOCKN
				PIN_SENSOR_CFG_LOCKN2

Current folder : D:\SVNtools\UI pinmux

Version: 0.7

(2) 按鈕變成 “Disable”，再點選一次會將相關的 pin name 隱藏

0	SDIO2	SDIO3	NAND	SENSOR
PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_NAND_CFG_NONE	PIN_SENSOR_CFG_NONE
PIN_SDIO_CFG_4BITS	PIN_SDIO_CFG_4BITS	PIN_SDIO_CFG_4BITS	PIN_NAND_CFG_1CS	PIN_SENSOR_CFG_8BITS
PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_NAND_CFG_2CS	PIN_SENSOR_CFG_10BITS
PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_NAND_CFG_SPI_NAND	PIN_SENSOR_CFG_12BITS
PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_NAND_CFG_SPI_NOR	PIN_SENSOR_CFG_MIIH
				PIN_SENSOR_CFG_LVDS
				PIN_SENSOR_CFG_LVDS_VDHD
				PIN_SENSOR_CFG_SHUTTER
				PIN_SENSOR_CFG_MCLK
				PIN_SENSOR_CFG_MCLK2
				PIN_SENSOR_CFG_MES0
				PIN_SENSOR_CFG_MES0_2ND
				PIN_SENSOR_CFG_MES1
				PIN_SENSOR_CFG_MES1_2ND
				PIN_SENSOR_CFG_FLCTR
				PIN_SENSOR_CFG_STROBE
				PIN_SENSOR_CFG_SPCLK
				PIN_SENSOR_CFG_SPCLK_2ND
				PIN_SENSOR_CFG_SP2CLK
				PIN_SENSOR_CFG_SP2CLK_2ND
				PIN_SENSOR_CFG_MES2
				PIN_SENSOR_CFG_MES2_2ND
				PIN_SENSOR_CFG_MES3
				PIN_SENSOR_CFG_MES3_2ND
				PIN_SENSOR_CFG_LOCKN
				PIN_SENSOR_CFG_LOCKN2

Current folder : D:\SVNtools\UI pinmux

Version: 0.7

S_GPIO0[SN_MCLK]

(3) 若是選擇的 pinmux 有互相衝突狀況，按下 Gen pinmu 按鈕，將無法 Gen 出 dtsi 檔案。而且會顯示相關衝突的 pin。如下圖

0	SDIO	SDIO2	SDIO3	NAND	SENSOR
PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_NAND_CFG_NONE	PIN_SENSOR_CFG_NONE
PIN_SDIO_CFG_4BITS	PIN_SDIO_CFG_4BITS	PIN_SDIO_CFG_4BITS	PIN_SDIO_CFG_4BITS	PIN_NAND_CFG_1CS	PIN_SENSOR_CFG_8BITS
PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_NAND_CFG_2CS	PIN_SENSOR_CFG_10BITS
PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_NAND_CFG_SPL_NAND	PIN_SENSOR_CFG_12BITS
PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_NAND_CFG_SPL_NOR	PIN_SENSOR_CFG_MIP1
					PIN_SENSOR_CFG_LVDS
					PIN_SENSOR_CFG_LVDS_VDHD
					PIN_SENSOR_CFG_SHUTTER
					PIN_SENSOR_CFG_MCLK
					PIN_SENSOR_CFG_MCLK2
					PIN_SENSOR_CFG_MES0
					PIN_SENSOR_CFG_MES0_2ND
					PIN_SENSOR_CFG_MES1
					PIN_SENSOR_CFG_MES1_2ND
					PIN_SENSOR_CFG_FLCTR
					PIN_SENSOR_CFG_STROBE
					PIN_SENSOR_CFG_SPLCK
					PIN_SENSOR_CFG_SPLCK_2ND
					PIN_SENSOR_CFG_SP2CLK
					PIN_SENSOR_CFG_SP2CLK_2ND
					PIN_SENSOR_CFG_MES2
					PIN_SENSOR_CFG_MES2_2ND
					PIN_SENSOR_CFG_MES3
					PIN_SENSOR_CFG_MES3_2ND
					PIN_SENSOR_CFG_LOCKN
					PIN_SENSOR_CFG_LOCKN2

MC16[SDIO_CLK(BS)]	MC22[SDIO2_CLK]	MC0[SDIO3_2_D]
MC17[SDIO_CMD(BS)]	MC23[SDIO2_CMD]	MC1[SDIO3_2_D]
MC18[SDIO_D0(BS)]	MC24[SDIO2_D0]	MC2[SDIO3_2_D]
MC19[SDIO_D1(BS)]	MC25[SDIO2_D1]	MC3[SDIO3_2_D]
MC20[SDIO_D2(BS)]	MC26[SDIO2_D2]	MC4[SDIO3_2_D]
MC21[SDIO_D3(BS)]	MC27[SDIO2_D3]	MC5[SDIO3_2_D]
		MC6[SDIO3_2_D]
		MC7[SDIO3_2_D]
		MC9[SDIO3_2_D]
		MC11[SDIO3_2_D]

Load dtsi

Show

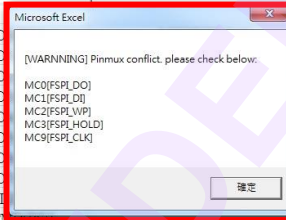
Clear All

Gen pinmux

Current folder : D:\SVN\tools\UI pinmux

Version: 0.7

S_GPIO[SN_MCLK]



3.9 Example

以下範例，示範操作如何將以下兩個功能加入 pinmux table

- [1] 開啟網路 rmii 介面
- [2] 開啟 special clock

[Step1] 開啟 UI tool，並載入 default 的 dtsi 檔案 (如 3.3 說明)

載入完畢後，Tool 會顯示目前 default dtsi 的相關設定內容。

0	SDIO	SDIO2	SDIO3	NAND	SENSOR
PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_NAND_CFG_NONE	PIN_SENSOR_CFG_NONE	PIN
PIN_SDIO_CFG_4BITS	PIN_SDIO_CFG_4BITS	PIN_SDIO_CFG_4BITS	PIN_NAND_CFG_1CS	PIN_SENSOR_CFG_8BITS	PIN
PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_NAND_CFG_2CS	PIN_SENSOR_CFG_10BITS	PIN
PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_NAND_CFG_SPL_NAND	PIN_SENSOR_CFG_12BITS	PIN
PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_NAND_CFG_SPL_NOR	PIN_SENSOR_CFG_MIP	PIN
				PIN_SENSOR_CFG_LVDS	PIN
				PIN_SENSOR_CFG_LVDS_VDHD	PIN
				PIN_SENSOR_CFG_SHUTTER	PIN
				PIN_SENSOR_CFG_MCLK	PIN
				PIN_SENSOR_CFG_MCLK2	PIN
				PIN_SENSOR_CFG_MES0	PIN
				PIN_SENSOR_CFG_MES0_2ND	PIN
				PIN_SENSOR_CFG_MES1	PIN
				PIN_SENSOR_CFG_MES1_2ND	PIN
				PIN_SENSOR_CFG_FLCTR	PIN
				PIN_SENSOR_CFG_STROBE	PIN
				PIN_SENSOR_CFG_SPLK	PIN
				PIN_SENSOR_CFG_SPLK_2ND	PIN
				PIN_SENSOR_CFG_SPCLK	PIN
				PIN_SENSOR_CFG_SPCLK_2ND	PIN
				PIN_SENSOR_CFG_MES2	PIN
				PIN_SENSOR_CFG_MES2_2ND	PIN
				PIN_SENSOR_CFG_MES3	PIN
				PIN_SENSOR_CFG_MES3_2ND	PIN
				PIN_SENSOR_CFG_LOCKN	PIN
				PIN_SENSOR_CFG_LOCKN2	PIN

Current folder :

[Step2] 依照需求，直接點選需要加入的項目

如下：點選網路 RMII 介面

LCD2	TV	HDMI	ETH
PINMUX_LCDMODE_RGB_SERIAL	PINMUX_TV_HDMI_CFG_GPIO	PINMUX_HDMIMODE_OFFSET	PIN_ETH_CFG_NONE
PINMUX_LCDMODE_RGB_PARALL	PINMUX_TV_HDMI_CFG_NORMAL	PINMUX_HDMIMODE_640X480P	PIN_ETH_CFG_MII
PINMUX_LCDMODE_YUV640	PINMUX_TV_HDMI_CFG_PINMUX	PINMUX_HDMIMODE_720X480P	PIN_ETH_CFG_RMII
PINMUX_LCDMODE_YUV720	PINMUX_TV_HDMI_CFG_MASK	PINMUX_HDMIMODE_720X480P	PIN_ETH_CFG_GMII
PINMUX_LCDMODE_RGBD360		PINMUX_HDMIMODE_1280X720I	PIN_ETH_CFG_RGMII
PINMUX_LCDMODE_RGBD320		PINMUX_HDMIMODE_1920X1080I	PIN_ETH_CFG_REVMII_10_100
PINMUX_LCDMODE_RGB_THROUG		PINMUX_HDMIMODE_720X480I	PIN_ETH_CFG_REVMII_10_1000
PINMUX_LCDMODE_CCIR601		PINMUX_HDMIMODE_720X480I	
PINMUX_LCDMODE_CCIR656		PINMUX_HDMIMODE_720X240P	
PINMUX_LCDMODE_RGB_PARALL		PINMUX_HDMIMODE_720X240P	
PINMUX_LCDMODE_RGB_PARALL		PINMUX_HDMIMODE_1440X480I	
PINMUX_LCDMODE_RGB_PARALL		PINMUX_HDMIMODE_1440X480I	
PINMUX_LCDMODE_MIPI		PINMUX_HDMIMODE_1440X240I	
PINMUX_LCDMODE_MI_OFFSET		PINMUX_HDMIMODE_1440X480I	
PINMUX_LCDMODE_MI_FMT0		PINMUX_HDMIMODE_1440X480I	
PINMUX_LCDMODE_MI_FMT1		PINMUX_HDMIMODE_1440X480I	
PINMUX_LCDMODE_MI_FMT2		PINMUX_HDMIMODE_720X576P	
PINMUX_LCDMODE_MI_FMT3		PINMUX_HDMIMODE_720X576P	

如下：點選 special clock

0	SDIO	SDIO2	SDIO3	NAND	SENSOR
PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_NAND_CFG_NONE	PIN_SENSOR_CFG_NONE	PIN
PIN_SDIO_CFG_4BITS	PIN_SDIO_CFG_4BITS	PIN_SDIO_CFG_4BITS	PIN_NAND_CFG_1CS	PIN_SENSOR_CFG_8BITS	PIN
PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_NAND_CFG_2CS	PIN_SENSOR_CFG_10BITS	PIN
PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_NAND_CFG_SPL_NAND	PIN_SENSOR_CFG_12BITS	PIN
PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_NAND_CFG_SPL_NOR	PIN_SENSOR_CFG_MIP	PIN
				PIN_SENSOR_CFG_LVDS	PIN
				PIN_SENSOR_CFG_LVDS_VDHD	PIN
				PIN_SENSOR_CFG_SHUTTER	PIN
				PIN_SENSOR_CFG_MCLK	PIN
				PIN_SENSOR_CFG_MCLK2	PIN
				PIN_SENSOR_CFG_MES0	PIN
				PIN_SENSOR_CFG_MES0_2ND	PIN
				PIN_SENSOR_CFG_MES1	PIN
				PIN_SENSOR_CFG_MES1_2ND	PIN
				PIN_SENSOR_CFG_FLCTR	PIN
				PIN_SENSOR_CFG_STROBE	PIN
				PIN_SENSOR_CFG_SPLK	PIN
				PIN_SENSOR_CFG_SPLK_2ND	PIN
				PIN_SENSOR_CFG_SPCLK	PIN
				PIN_SENSOR_CFG_SPCLK_2ND	PIN
				PIN_SENSOR_CFG_MES2	PIN
				PIN_SENSOR_CFG_MES2_2ND	PIN

[Step3] 點選 Gen pinmux 按鈕，即會在該目錄產出 nvt-na51000-top.dtsi

0				
SDIO	SDIO2	SDIO3	NAND	SENSOR
PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_SDIO_CFG_NONE	PIN_NAND_CFG_NONE	PIN_SENSOR_CFG_NONE
PIN_SDIO_CFG_4BITS	PIN_SDIO_CFG_4BITS	PIN_SDIO_CFG_4BITS	PIN_NAND_CFG_CS	PIN_SENSOR_CFG_8BITS
PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_SDIO_CFG_8BITS	PIN_NAND_CFG_CS	PIN_SENSOR_CFG_10BITS
PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_SDIO_CFG_1ST_PINMUX	PIN_NAND_CFG_SF_NAND	PIN_SENSOR_CFG_12BITS
PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_SDIO_CFG_2ND_PINMUX	PIN_NAND_CFG_SPI_NOR	
				PIN_SENSOR_CFG_LVDS
				PIN_SENSOR_CFG_LVDS_VDHD
				PIN_SENSOR_CFG_SHUTTER
				PIN_SENSOR_CFG_MCLK1
				PIN_SENSOR_CFG_MCLK2
				PIN_SENSOR_CFG_MES0
				PIN_SENSOR_CFG_MES0_2ND
				PIN_SENSOR_CFG_MES1
				PIN_SENSOR_CFG_MES1_2ND
				PIN_SENSOR_CFG_FLCTR
				PIN_SENSOR_CFG_STROBE
				PIN_SENSOR_CFG_SCLK
				PIN_SENSOR_CFG_SCLK_2ND
				PIN_SENSOR_CFG_S2CLK
				PIN_SENSOR_CFG_S2CLK_2ND
				PIN_SENSOR_CFG_MES2
				PIN_SENSOR_CFG_MES2_2ND
				PIN_SENSOR_CFG_MES3
				PIN_SENSOR_CFG_MES3_2ND
				PIN_SENSOR_CFG_LOCKN
				PIN_SENSOR_CFG_LOCKN2
Current folder :	D:\work\U\hool\20180905			
	Gen pinmux			

dt si 檔案內容如下

```

nvt-na51000-top.dtsi
1 stop {
2 sdio(pinnmux = <0x1>);
3 sdio2(pinnmux = <0x1>);
4 sdio3(pinnmux = <0x0>);
5 nand(pinnmux = <0x5>);
6 sensor(pinnmux = <0x20220>);
7 sensor2(pinnmux = <0x0>);
8 sensor3(pinnmux = <0x0>);
9 sensor4(pinnmux = <0x0>);
10 sensor5(pinnmux = <0x0>);
11 sensor6(pinnmux = <0x0>);
12 sensor7(pinnmux = <0x0>);
13 sensor8(pinnmux = <0x0>);
14 mipi_lvds(pinnmux = <0xff0f1>);
15 lcd(pinnmux = <0x10011>);
16 sif(pinnmux = <0x8>);
17 uart(pinnmux = <0x5>);
18 spi(pinnmux = <0x0>);
19 remote(pinnmux = <0x0>);
20 pwm(pinnmux = <0x0>);
21 audio(pinnmux = <0x0>);
22 lcd1(pinnmux = <0x10000000>);
23 lcd2(pinnmux = <0x0>);
24 tv(pinnmux = <0x0>);
25 hdmi(pinnmux = <0x42>);
26 eth(pinnmux = <0x2>);
27 canbus(pinnmux = <0x0>);
28 };
29

```