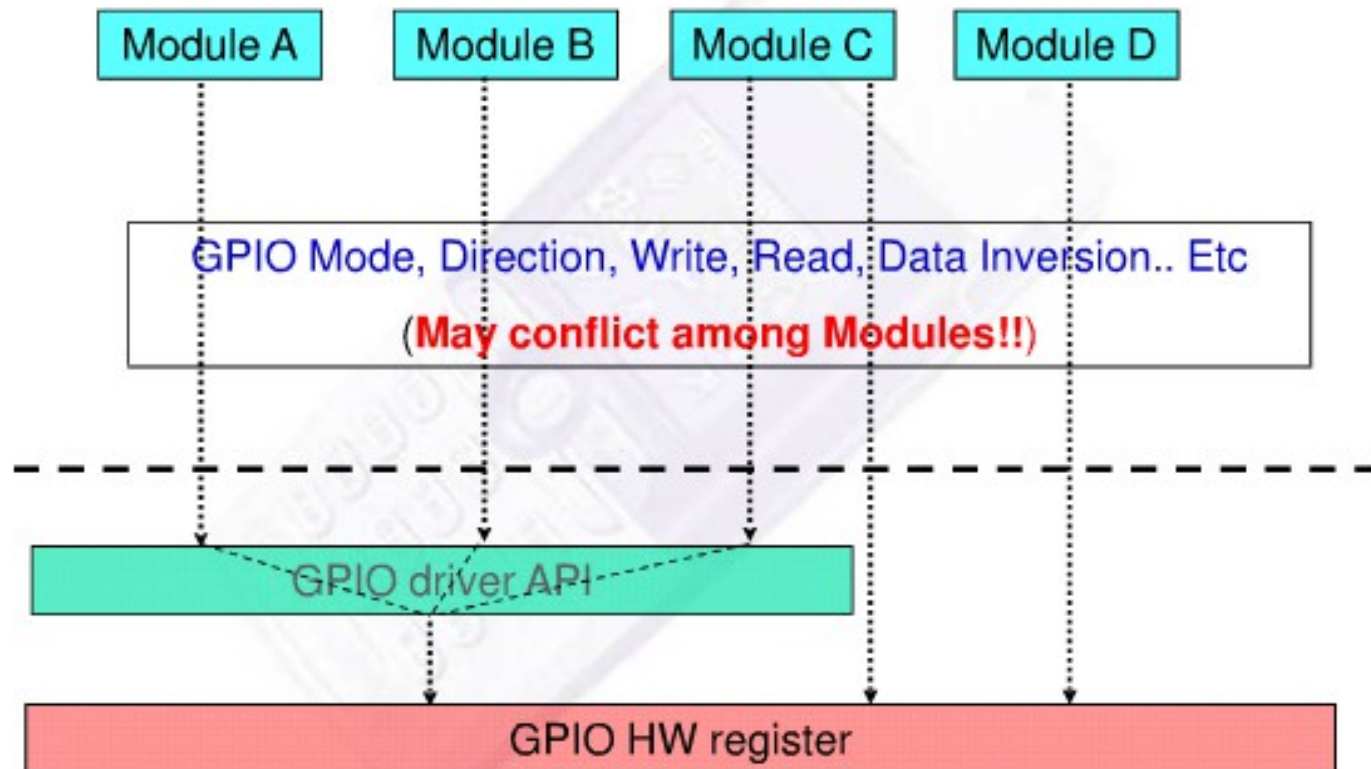


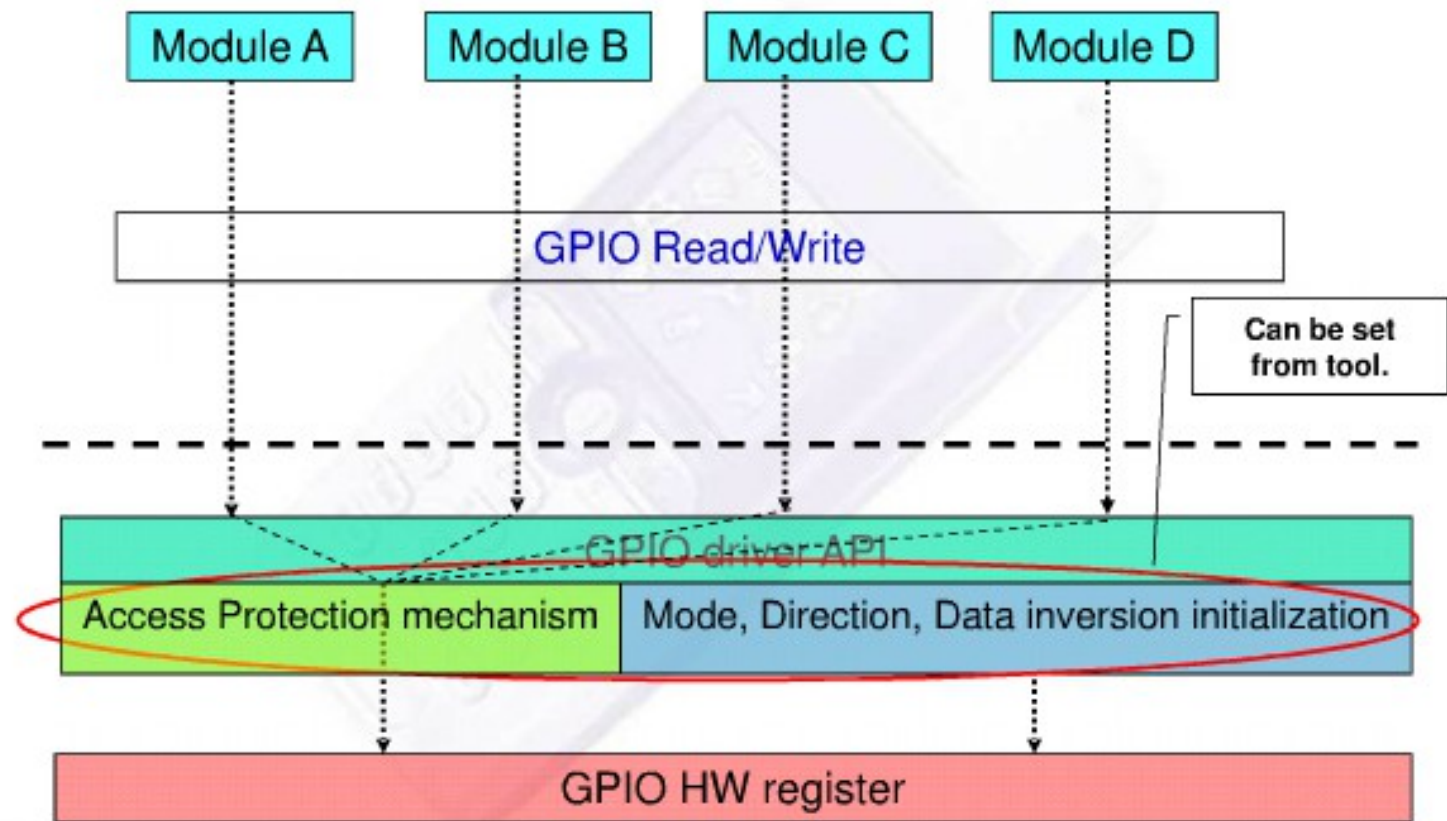
# Driver Customization Tool

MTK

## Old scheme for GPIO access

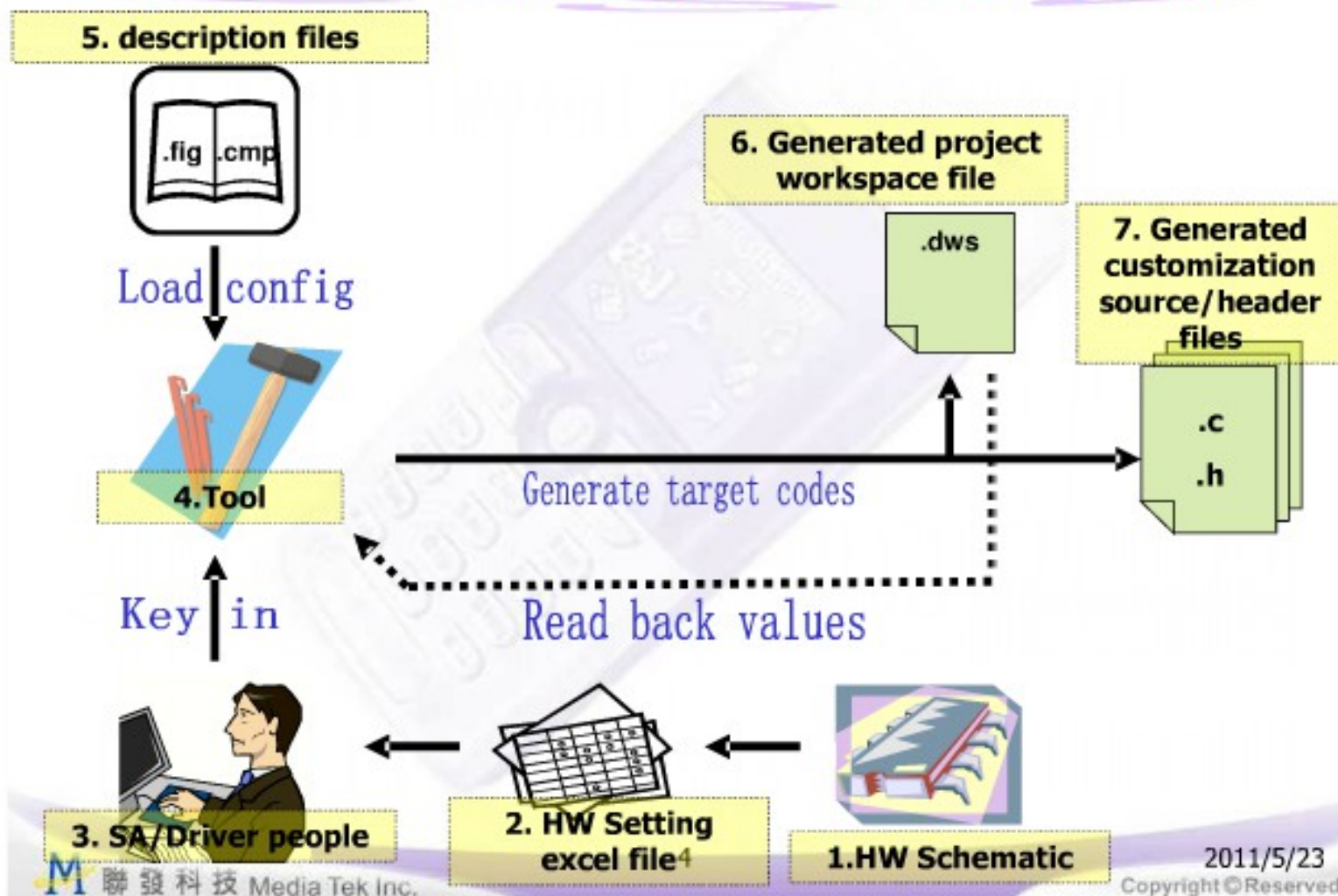


# New scheme for GPIO access





## New customization architecture and flow



## Step1: Turn on feature

- ◆ In the Project\_Name.mak file, turn on the customization tool feature as below:

```
DRV_CUSTOM_TOOL_SUPPORT = TRUE      # TRUE or FALSE
```

- ◆ Note that when this feature is turned on, a compile option `__CUST_NEW__` will be defined.



## Step2: Create a data workspace file (1/4)

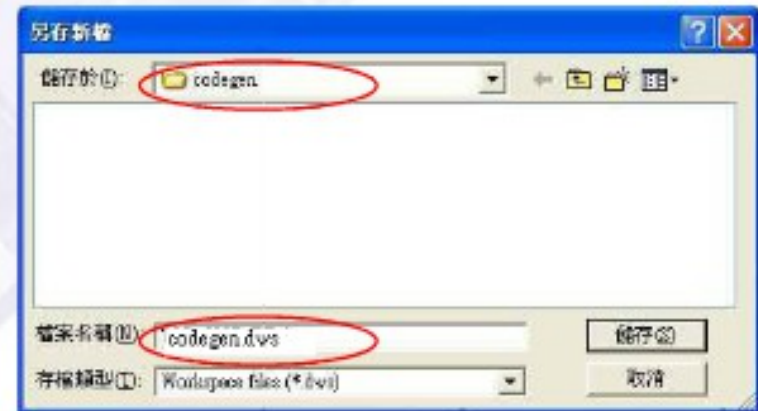
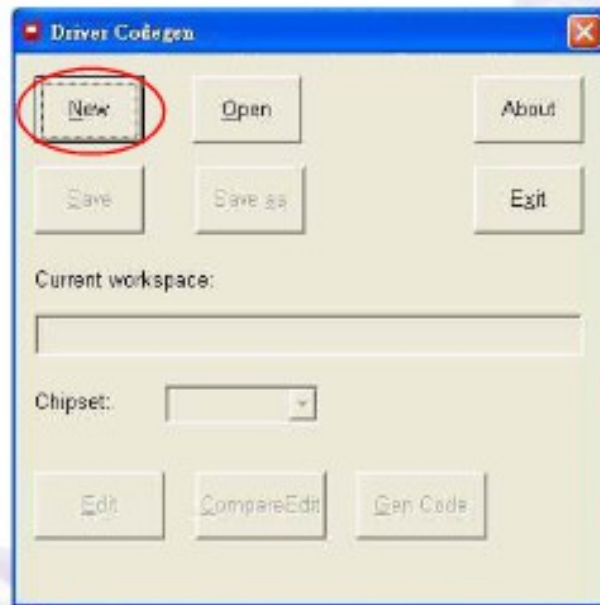
- ◆ Create a codegen folder

- ◆ \mcu\custom\drv\misc\_drv\BOARD\_VER\codegen where BOARD\_VER is the Baseband main board description in the Project\_Name.mak.
- ◆ For example, if BOARD\_VER = TOP\_6227\_BB in TOP6227\_DEMO\_GPRS.mak, then create a codegen folder under \mcu\custom\drv\misc\_drv\TOP\_6227\_BB\

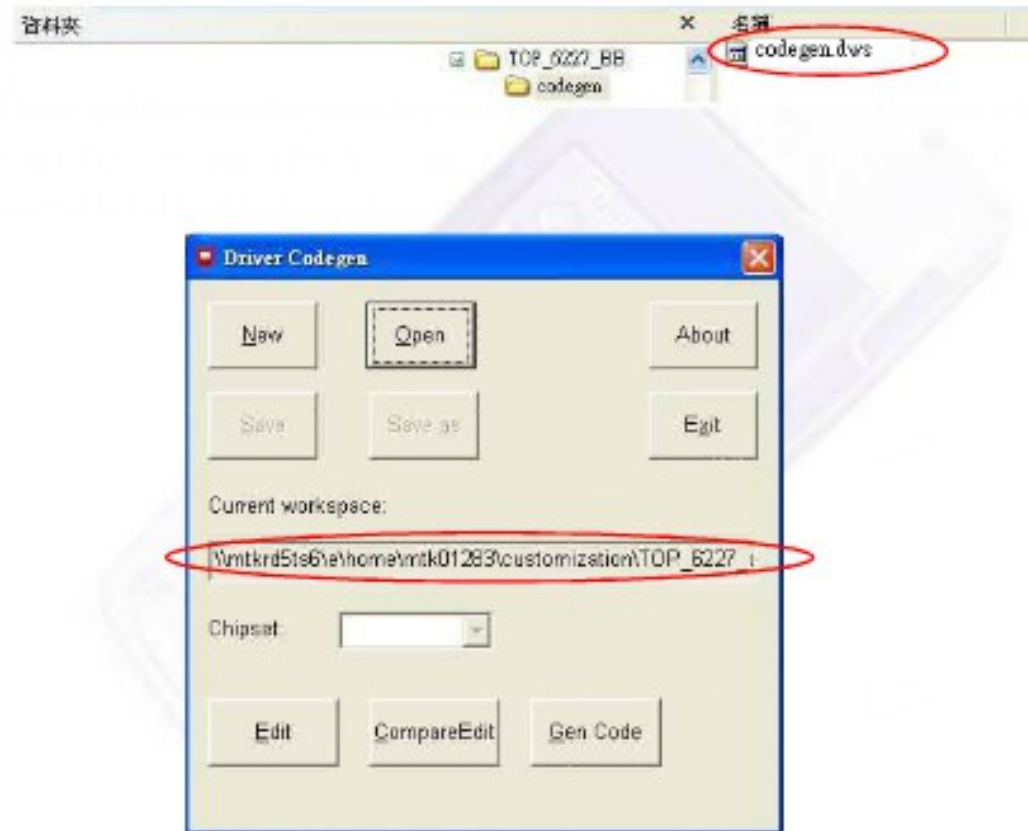


## Step2: Create a data workspace file (2/4)

- ◆ Create a data workspace file:
  - ◆ New a data workspace by tool on the folder as mentioned above:  
`\mcu\custom\drv\misc_drv\BOARD_VER\codegen`. And the file name of this data workspace must be `codegen.dws`.

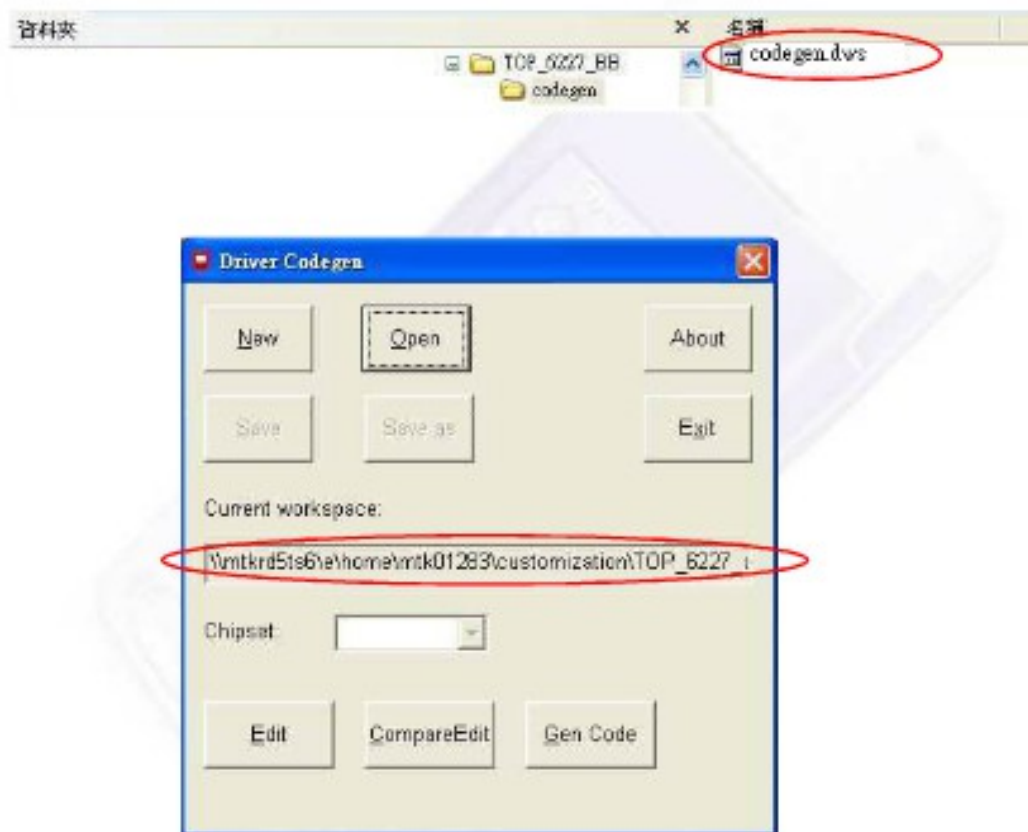


## Step2: Create a data workspace file (3/4)





## Step2: Create a data workspace file (4/4)

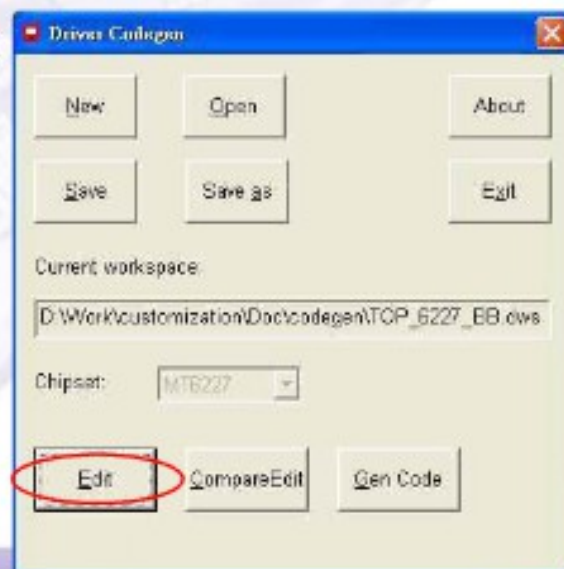


## Step3: Edit Settings on tool

- ◆ Chipset selection



- ◆ Press the “Edit” button



# Step3-1: Edit GPIO Settings

D:\Work\Customization\Doc\code\ga\TOP\_6227\_BB.dws

GPI Setting | GPI Setting | INT Setting | ADC Setting | KEYPAD Setting

	Def.Mode	M0	M1	M2	M3	Pul	Def Dir	In	Out	Inv	VarName1	VarName2
GPIO0	0:GPIO0	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PD	OUT		<input checked="" type="checkbox"/>		gpio_led_status1_en_pin	
GPIO1	0:GPIO1	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PD	OUT		<input checked="" type="checkbox"/>		gpio_flash_power_en_pin	
GPIO2	NC					<input checked="" type="checkbox"/> PD						
GPIO3	0:GPIO3	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PD	OUT		<input checked="" type="checkbox"/>		gpio_bt_dataselect_pin	
GPIO4	0:GPIO4	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PD	OUT		<input checked="" type="checkbox"/>		gpio_bt_dac_pin	
GPIO5	0:GPIO5	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PD	OUT		<input checked="" type="checkbox"/>		gpio_led_main1_en_pin	
GPIO6	0:GPIO6	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PD	OUT		<input checked="" type="checkbox"/>		gpio_flashlight_en_pin	
GPIO7	0:GPIO7	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PD	OUT		<input checked="" type="checkbox"/>		gpio_vibrator_en_pin	
GPIO8	0:GPIO8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/> PD	OUT		<input checked="" type="checkbox"/>		gpio_sccb_serial_clk_pin	
GPIO9	0:GPIO9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/> PD	OUT		<input checked="" type="checkbox"/>		gpio_sccb_serial_data_pin	
GPIO10	0:GPIO10	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PD	OUT		<input checked="" type="checkbox"/>			
GPIO11	NC					<input checked="" type="checkbox"/> PD						
GPIO12	0:GPIO12	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PD	OUT		<input checked="" type="checkbox"/>		gpio_bt_power_pin	
GPIO13	0:GPIO13	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PD	OUT		<input checked="" type="checkbox"/>		gpio_rf_control_pin	
GPIO14	1:MCNS		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/> PU						
GPIO15	1:MCWP		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/> PU						
GPIO16	0:GPIO16	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PU	OUT		<input checked="" type="checkbox"/>		gpio_tp_spi_clk_pin	
GPIO17	0:GPIO17	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PU	N	<input checked="" type="checkbox"/>			gpio_tp_spi_busy_pin	
GPIO18	0:GPIO18	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PU	N	<input checked="" type="checkbox"/>			gpio_tp_spi_dcvt_pin	
GPIO19	0:GPIO19	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PU	OUT		<input checked="" type="checkbox"/>		gpio_tp_spi_cs_pin	
GPIO20	NC					<input checked="" type="checkbox"/> PU						
GPIO21	1:PWM1		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/> PD						
GPIO22	NC					<input checked="" type="checkbox"/> PU						

確定 取消

GPIO Mode settings

GPIO Pull-up/Pull down enable

GPIO Direction settings

GPIO data inversion enable

GPIO variables assignment



## Step3-1: Edit GPIO Settings

### ◆ Default Mode

GPIO Setting		GPO Setting	E
	Def.Mode		
GPIO0	0:GPIO0		
GPIO1	0:GPIO0		
GPIO2	1:DICL		
GPIO3	2:DSP_GPO3		
GPIO4	3:		
GPIO5	NC		
GPIO6	0:GPIO6		
GPIO7	0:GPIO7		

### ◆ Allowed Mode

GPIO Setting		GPO Setting	EINT Setting	ADC Settin			
	Def.Mode	MD	M1	M2	M3		
GPIO0	0:GPIO0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
GPIO1	0:GPIO1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
GPIO2	NC						
GPIO3	1:DIMS	<input type="checkbox"/>	<input checked="" type="checkbox"/>				
GPIO4	1:DSP_CLK	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

## Step3-1: Edit GPIO Settings

- ◆ **Pull-up/Pull-down enable:** check box
- ◆ **Direction Settings:** This category contains three columns and they are only enabled when the allowed mode (M0, M1, M2 or M3) for the corresponding GPIO is checked.

GPIO Setting   GPIO Setting   EINT Setting   ADC Setting   KEYPAD Setting												
	Def Mode	M0	M1	M2	M3	Pull	Def.Dir	In	Out	INV	VarName1	
GPIO0	0:GPIO0	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> P0	OUT		<input checked="" type="checkbox"/>		gpio_led_status1_en_pin	
GPIO1	1:BSI_RFIN		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/> P0						
GPIO2	NC					<input checked="" type="checkbox"/> P0						

- ◆ **Default direction:**



- ◆ **Allowed direction:** In & Out

- ◆ **Data inversion enable:** check box



## Step3-1: Edit GPIO Settings

- ◆ **Variables assignment:** It contains two columns: VarName1 and VarName2 and is enabled only when the allowed mode (M0, M1, M2 or M3) for the corresponding GPIO pin is checked.

GPIO Setting   GPO Setting   EINT Setting   ADC Setting   KEYPAD Setting											
	Def Mode	M0	M1	M2	M3	Pull	DefDir	In	Out	INV	VarName1
GPIO0	0: GPIO0	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PD OUT			<input checked="" type="checkbox"/>		gpio_led_status1_en_pin
GPIO1	0: GPIO1	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PD OUT			<input checked="" type="checkbox"/>		gpio_led_status_en_pin
GPIO2	NC					<input checked="" type="checkbox"/> PD					gpio_led_status1_en_pin
GPIO3	0: GPIO3	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PD OUT			<input checked="" type="checkbox"/>		gpio_led_status2_en_pin
GPIO4	0: GPIO4	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PD OUT			<input checked="" type="checkbox"/>		gpio_led_status3_en_pin
GPIO5	0: GPIO5	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PD OUT			<input checked="" type="checkbox"/>		gpio_led_keybl_en_pin
GPIO6	0: GPIO6	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PD OUT			<input checked="" type="checkbox"/>		gpio_vibrator_en_pin
GPIO7	0: GPIO7	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/> PD OUT			<input checked="" type="checkbox"/>		gpio_flashlight_en_pin
GPIO8	0: GPIO8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/> PD OUT			<input checked="" type="checkbox"/>		gpio_camera_power_en_pin
GPIO9	0: GPIO9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/> PD OUT			<input checked="" type="checkbox"/>		gpio_camera_reset_pin
GPIO10	0: GPIO10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/> PD OUT			<input checked="" type="checkbox"/>		gpio_camera_cmpdn_pin

- ◆ VarName2 is for special cases when a GPIO pin is shared between two applications or modules

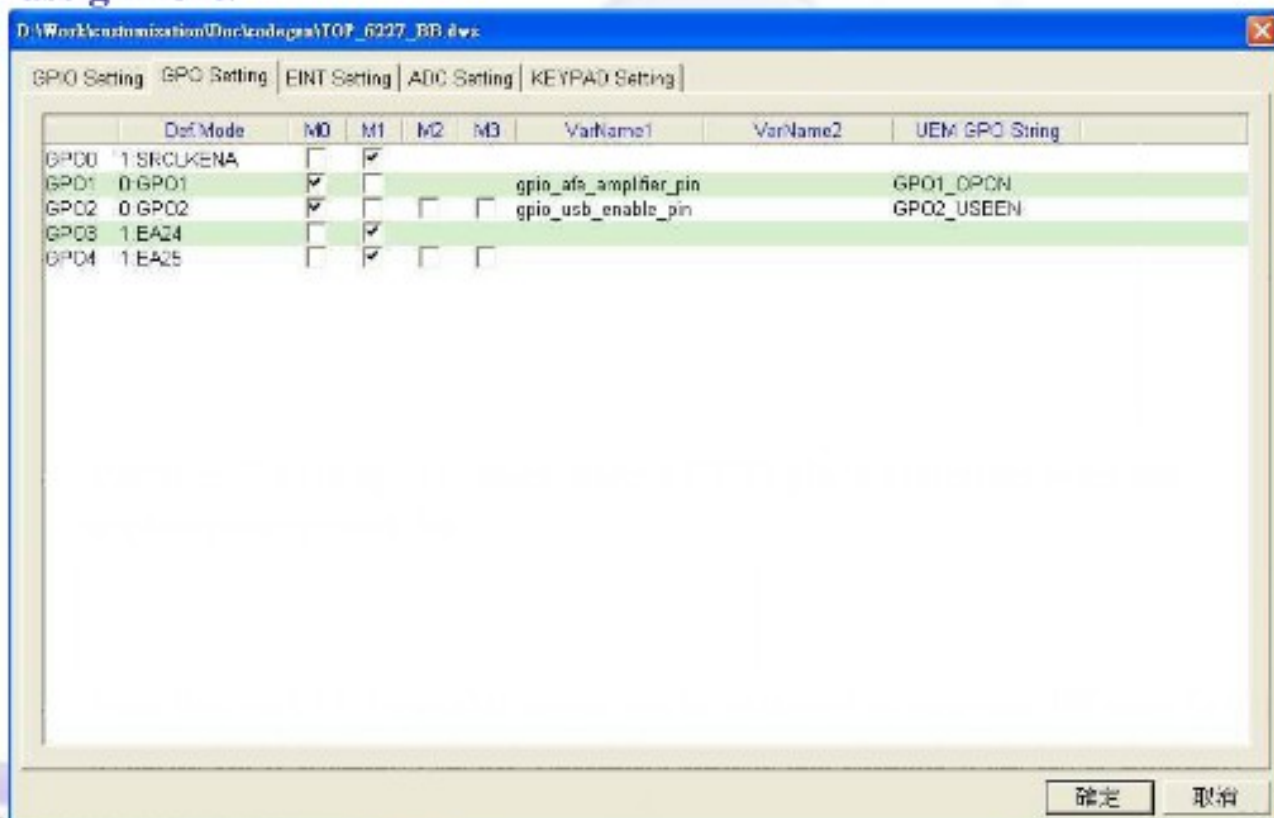
VarName1	VarName2
gpio_led_status1_en_pin	gpio_flash_test_cmd_bit0_pin

- ◆ Note that no GPIO variable name can be assigned in any two different fields even in GPO Setting (GPIO variables names are shared with GPO Setting)



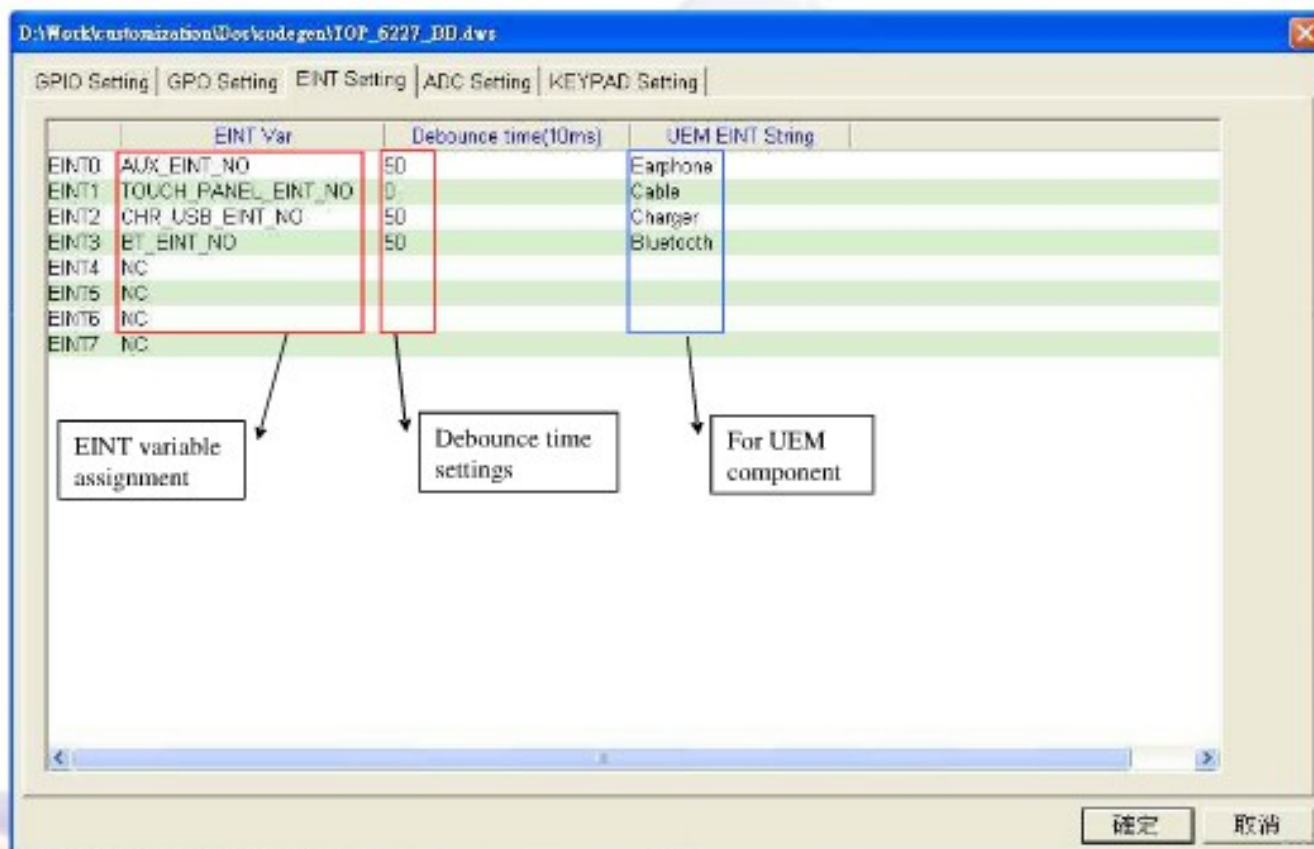
## Step3-2: Edit GPO

- The GPO editing window is just like GPIO editing window except that it only contains two categories: **GPO mode settings** and **GPIO variables assignment**.



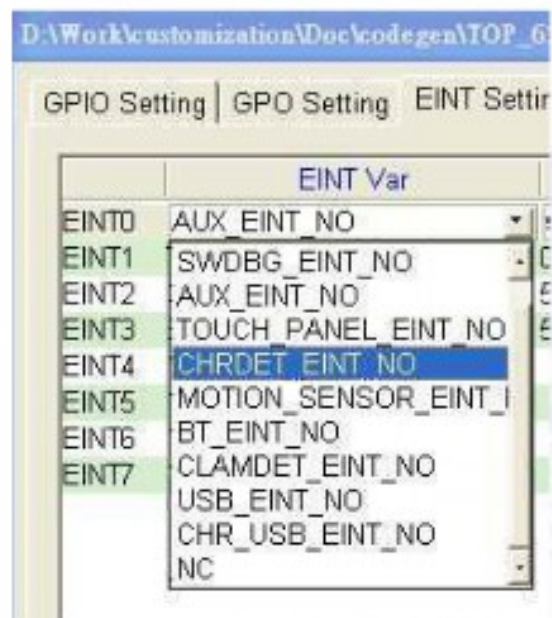
## Step3-3: Edit EINT

- The EINT editing window contains two categories: **EINT variables assignment** and **Software debounce Time settings** as below.

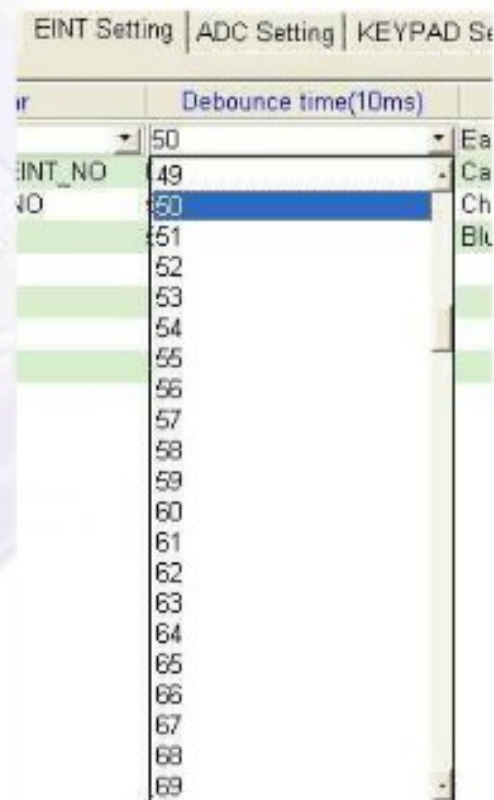


## Step3-3: Edit EINT

- Variables assignment:



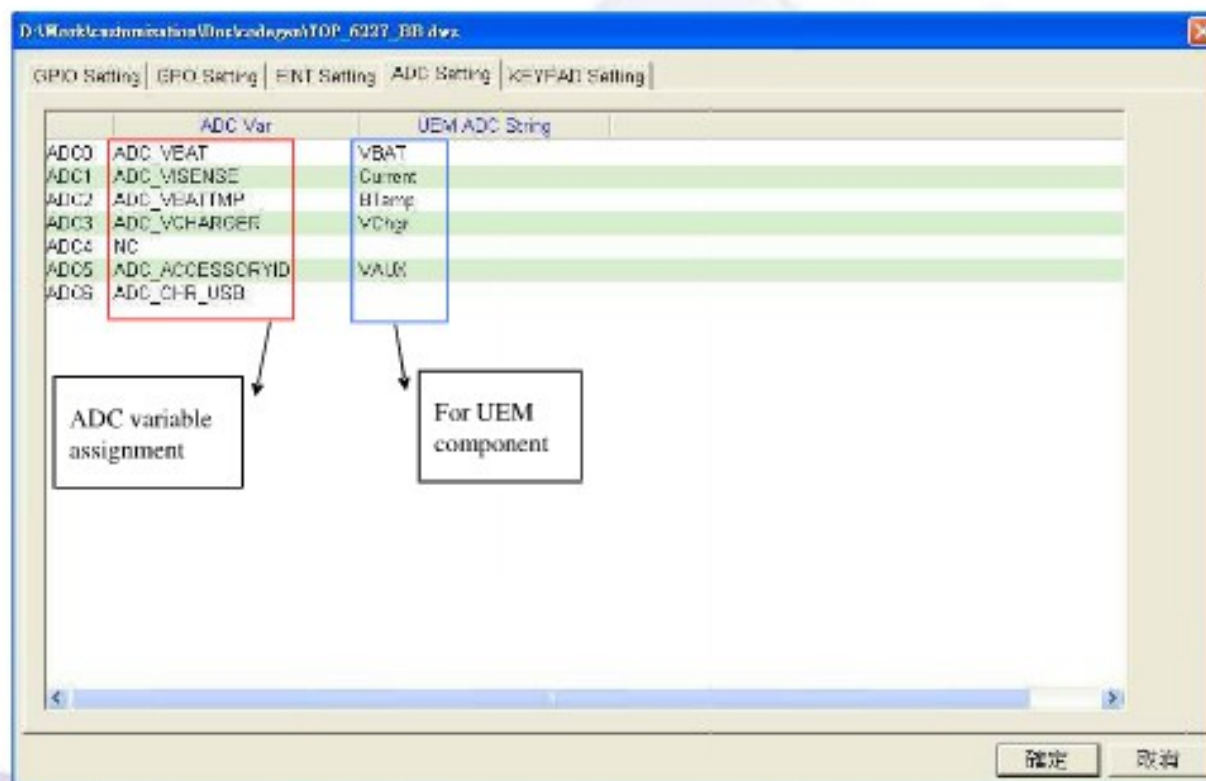
- Software debounce time setting:





## Step3-4: Edit ADC

- The ADC editing window contains just one category: **ADC variables assignment** as below.



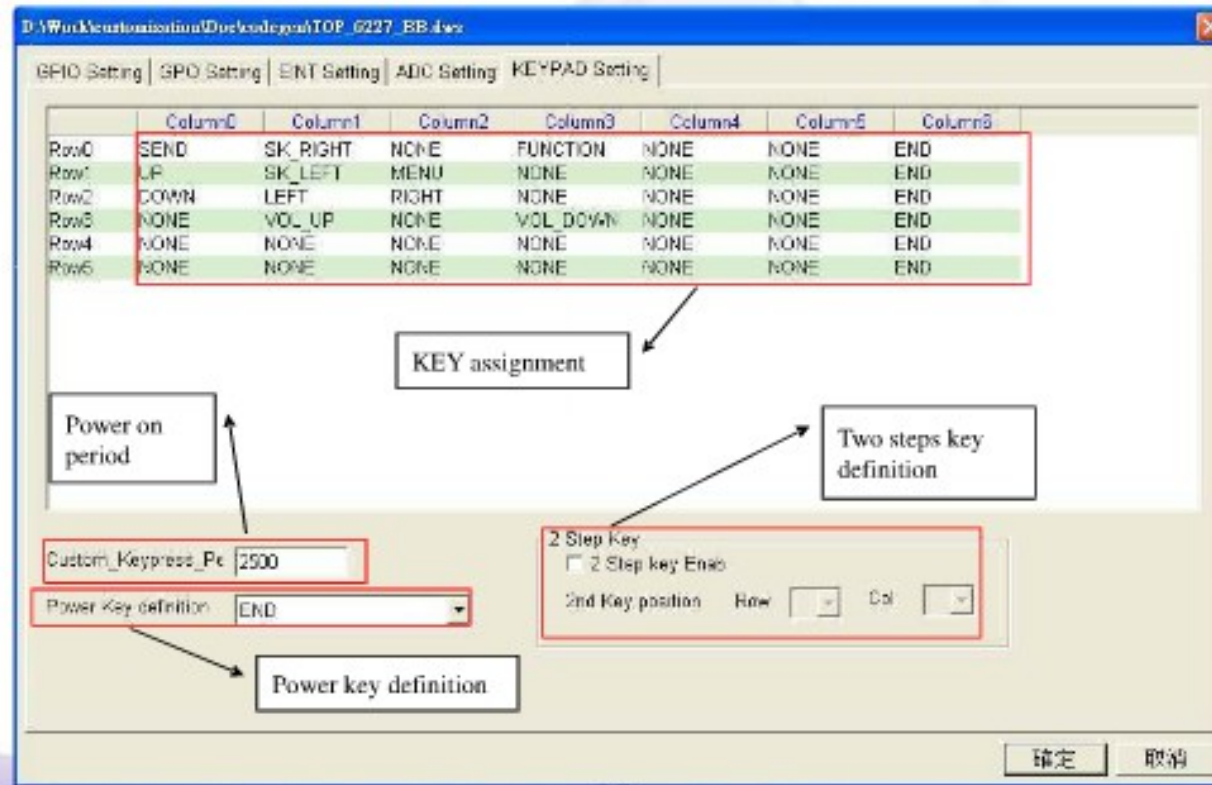
## Step3-4: Edit ADC

- Variables assignment:

	ADC Var
ADC0	ADC_VBAT
ADC1	ADC_VISENSE
ADC2	ADC_VBAT
ADC3	ADC_VISENSE
ADC4	ADC_VBATTMP
ADC5	ADC_VCHARGER
ADC6	ADC_ACCESSORYID
	ADC_PCBTMP
	ADC_CHR_USB
	NC

## Step3-5: Edit KEYPAD

- The KEYPAD editing window contains just four categories: **KEY assignment**, **Power on period**, **Power key definition** and **two steps key definition**.





## Step3-5: Edit KEYPAD

### ◆ Key assignment:

D:\Work\customization\Doc\codegen\TOP\_6227\_BB\_4ws

	Column0	Column1	Column2	Column3	Column4	Column5	Column6
Row0	SEND	SK_RIGHT	NONE	FUNCTION	NONE	NONE	END
Row1	UP	SK_LEFT	MENU	NONE	NONE	NONE	END
Row2	DOWN	LEFT	RIGHT	NONE	NONE	NONE	END
Row3	NONE	DOWN	NONE	VOL_DOWN	NONE	NONE	END
Row4	NONE	LEFT	NONE	NONE	NONE	NONE	END
Row5	NONE	RIGHT	NONE	NONE	NONE	NONE	END

Dropdown menu for Row2, Column1:

- DOWN
- LEFT
- RIGHT
- MENU
- FUNCTION
- SK\_LEFT
- SK\_RIGHT
- SEND
- END
- POWER
- CLEAR
- EXT\_FUNC1

### ◆ Power on period:

Custom\_Keypress\_Period: 2500

## Step3-5: Edit KEYPAD

- ◆ Power key definition:

Power Key definition	END
	SK_RIGHT
	SEND
	END
	POWER
	CLEAR
	EXT_FUNC1
	EXT_FUNC2
	MAX_DEVICE_KEYS
	NONE

- ◆ Two steps key enable:

- ◆ When this field is enabled, user can assign the full pressed position (2nd key position) on the keypad matrix for the two steps key.

2 Step Key
<input checked="" type="checkbox"/> 2 Step key Enab

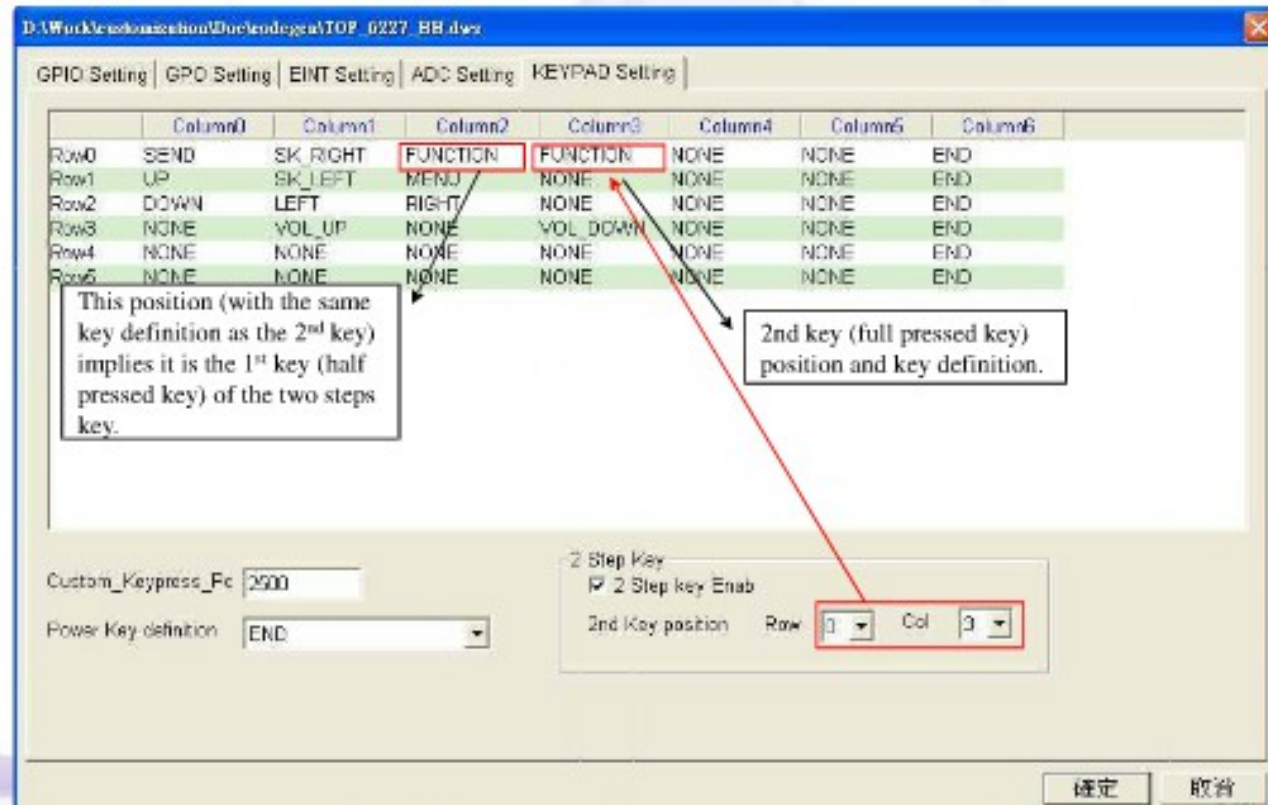
2 Step Key				
<input checked="" type="checkbox"/> 2 Step key Enab				
2nd Key position	Row	0	Col	3
		0		
		1		
		2		
		3		
		4		
		5		

2 Step Key				
<input checked="" type="checkbox"/> 2 Step key Enab				
2nd Key position	Row	0	Col	3
		0		
		1		
		2		
		3		
		4		
		5		
		6		



## Step3-5: Edit KEYPAD

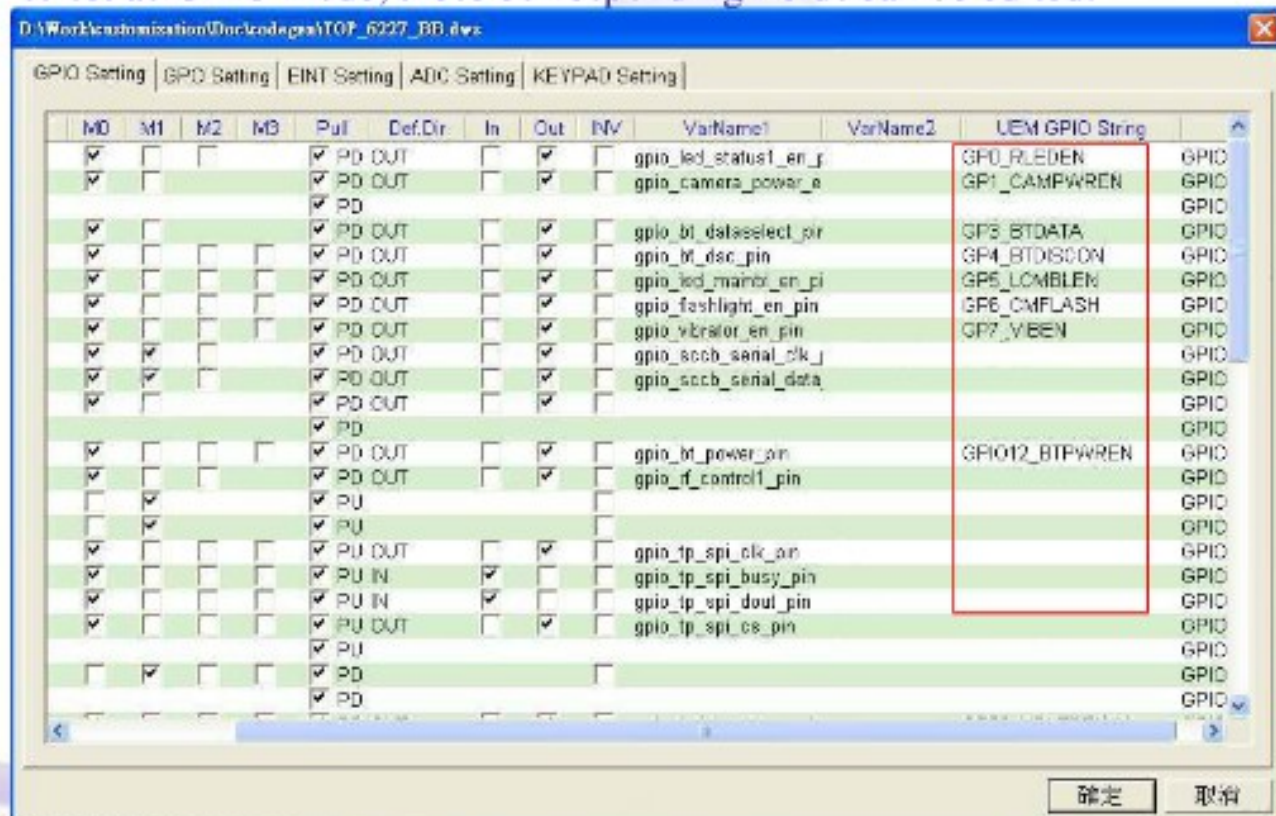
- The 1st key position (half pressed key position) is implied on the position which has the same key definition as the 2nd key. User should take care of having 1st key on the keypad matrix. **The tool would not check it.**





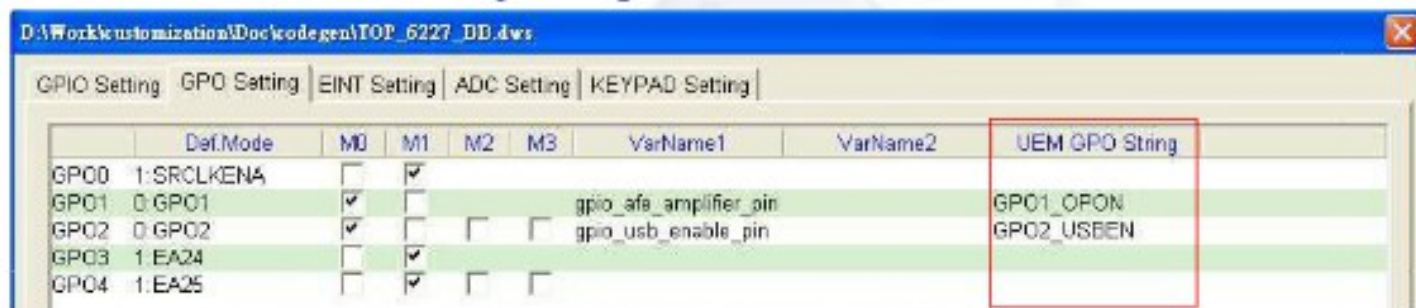
## Step3-6: Edit UEM

- ◆ **UEM GPIO String Editing:** the field is in the last column of GPIO Setting window. Note that only for those GPIO ports which are permitted to set as GPIO mode, these corresponding fields can be edited.

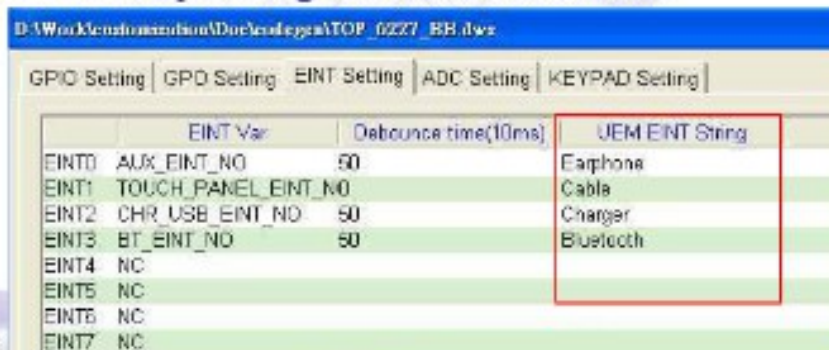


## Step3-6: Edit UEM

- ◆ **UEM GPO String Editing:** the field is in the last column of GPO Setting window. Note that only for those GPO ports which are permitted to set as GPO mode, these corresponding fields can be edited.



- ◆ **UEM EINT String Editing:** field is in the last column of EINT Setting window. Note that only for those EINT pins which are assigned variables, these corresponding fields can be edited.





## Step3-6: Edit UEM

- ◆ **UEM ADC String Editing:** the field is in the last column of ADC Setting window. Note that only for those ADC channel which are assigned variables, these corresponding fields can be edited.

D:\Work\customization\Doc\codegen\TOP\_6227\_BB.dws

	ADC Var	UEM ADC String
ADC0	ADC_VBAT	VBAT
ADC1	ADC_VISENSE	Current
ADC2	ADC_VBATTMP	BTemp
ADC3	ADC_VCHARGER	VChgr
ADC4	NC	
ADC5	ADC_ACCESSORYID	VAUX
ADC6	ADC_CHR_USB	