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SIMCOM WCDMA Wireless Module

SIM5xxx GPIO Application Note

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VERSION HISTORY

Date	Version	Description of change	Author
2010-03-23	1.00	Origin	aaron
2011-08-16	1.01	Add SIM5320 description	libing

Contents

1. Introduction

1.1 Overview

This document will depict the usage of GPIO functions supplied by SIM5XXX. User can get useful information about the SIM5XXX's GPIO function quickly through this document.

SIM5XXX GPIO can be used as:

- General Purpose Input/Output pin.
- Interrupt pin
- Special function pin.

Note: SIM5215/5216/5320 have all of these GPIO functions, while SIM5218 have some of these functions

1.2 Scope of the document

This document is intended for the following versions of the SIMCom modules

SIM5215
SIM5216
SIM5218
SIM5320

1.3 References

[1] SIMCOM_SIM5XXX_ATC_EN_Vx.xx.doc.

1.4 Terms and Abbreviations

For the purposes of the present document, the following abbreviations apply:

- AT ATtention; the two-character abbreviation is used to start a command line to be sent from TE/DTE to TA/DCE

2. Use GPIO

2.1 GPIOs supplied by SIM5XXX

Currently the following pins can be used as GPIO on SIM5XXX:

Name	Index	Alternate Function	Default
PCM_DIN	0	PCM	Interrupt [LEVEL/LOW]
STATUS_LED	1	Status led	Status led
PCM_SYNC	2	PCM	GPIO [IN]
PCM_CLK	3	PCM	GPIO [OUT/LOW]
RF_SWITCH	4	Enable/Disable RF subsystem	RF Switch
PCM_OUT	5	PCM	GPIO [OUT/LOW]
KEYPAD_4	6	keypad	Keypad
KEYPAD_3	7	keypad	Keypad
KEYPAD_2	8	keypad	Keypad
KEYPAD_1	9	keypad	Keypad
KEYPAD_0	10	keypad	Keypad
KEYSENSE4_N	11	keypad	Keypad
KEYSENSE3_N	12	keypad	Keypad
KEYSENSE2_N	13	keypad	Keypad
KEYSENSE1_N	14	keypad	Keypad
KEYSENSE0_N	15	keypad	Keypad
CAMIF_HSYNC	16	camera interface	Camera
CAMIF_VSYNC	17	camera interface	Camera
CAMIF_PCLK	18	camera interface	Camera
CAMIF_MCLK	19	camera interface	Camera
CAMIF_STDBY	20	camera interface	Camera
CAMIF_RESET	21	camera interface	Camera
CAMIF_DATA2	22	camera interface	Camera
CAMIF_DATA3	23	camera interface	Camera
CAMIF_DATA4	24	camera interface	Camera
CAMIF_DATA5	25	camera interface	Camera
CAMIF_DATA6	26	camera interface	Camera
CAMIF_DATA7	27	camera interface	Camera
CAMIF_DATA8	28	camera interface	Camera
CAMIF_DATA9	29	camera interface	Camera
UART1_CTS	33	CTS of UART1	CTS
UART1_RFR	34	RTS of UART1	RTS
UART1_DTR	35	DTR of UART1 wake up SIM5XXX	DTR
UART_DCD	36	DCD of UART1	DCD
UART_RI	37	RI of UART1 wake up host	RI
GPIO40	40	SIM5320 power up status	power up status
GPIO41	41	SIM5320 Wake up host	Wake up host
GPIO42	42	SIM5320 GPIO	GPIO

GPIO43	43	Wake up SIM5320 module	GPIO
GPIO44	44	SIM5320 GPIO	GPIO

Table 1 GPIOs supplied by SIM5XXX

Note:

1) Not all of the Modules of SIM5XXX series have the whole upper pins , some may have keypad while others may have camera.

2) all of the pins refered in Table1 can be used as GPIO pin, interrupt pin and some of them can be used as function pin.

Currently the following Functions can be used by special GPIO on SIM5XXX:

Function Name	Index	Comment
FUNC_STATUS_LED	1	Only STATUS_LED pin can use such function
FUNC_WAKEUP_ME	2	Only UART1_DTR pin can use such function
FUNC_WAKEUP_HOST	3	Only UART1_RI pin can use such function
FUNC_PCM	4	PCM_DIN, PCM_SYNC, PCM_CLK,PCM_OUT pints can use such function
FUNC_CAMERA	6	CAMIF_XXX pins can use such function
FUNC_KEYPAD	7	KEY_XXX pins can use such function
FUNC_RF_CONTROL	9	Only RF_SWITCH pin can use such function
FUNC_UART_DCD	10	Only UART_DCD pin can use such function
FUNC_FLOW_CTL	11	UART1_CTS, UART1_RFR can use such function
FUNC_WAKEUP_SIM5320 module by GPIO43	12	Function wake up SIM5320 module by GPIO43
FUNC_WAKEUP_HOST by GPIO41	13	Function wake up host by SIM5320 GPIO41
FUNC_ SIM5320 power up status	14	Function SIM5320 module power up status(GPIO40)

Table 2 Functions supplied by SIM5XXX

Note:

1) A Tcommand "AT+CGFUNC" is not supported on SIM5218 .

2) Since each function has its own pins so one can't set another pin to this function.

3) Once one function is enabled one must disable such function first if one wants to use the special pin as GPIO.

2.2 Example

Example1: If one needn't status led function, then one can use STATUS_LED pin as GPIO or interrupt source. Now we use this pin as an output GPIO:

1) AT+CGFUNC=1,0 //close such function, only disable the function can this pin be used as GPIO
2) AT+CGDRT=1,1 //set this pin to output

3) AT+CGSETV=1,1 //set this pin to high value

Example2: If one wants to use UART1_CTS as an interrupt pin:

1) AT+CSUART=0 //UART must work under NULL modem.
2) AT+CGFUNC=11,0 //close such function
3) AT+CGISR=33,0,1 //set interrupt trigger condition and start this interruption.

When the interruption happened, the following URC will be sent to host. And also LUA task will be notified.

```
GPIO[0] Interrupt Alarm!value:0
```

Example3: If one wants to use UART1_DTR as an function pin:

1) AT+CSUART=0 //UART must work under NULL modem.
2) AT+CGFUNC=2,1 //just enable this function.

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