# 實習題目-1 按鍵及UART/LCD控制

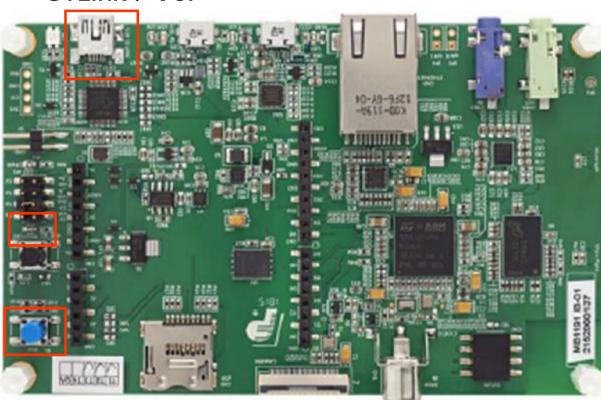
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### 題目功能

- 1. 開機後USR LED OFF
- 2. 按下USR BUTTON後,USR LED以1Hz速度閃爍,同時COM Port及LCD螢幕送出"LED FLASH = 1\r\n"字串。
- 3. 再按下USR BUTTON後, USR LED OFF並停止閃爍,同時 COM Port及LCD螢幕送出"LED FLASH = 0\r\n"字串。
- 4. 按USR BUTTON交互控制USR LED閃爍與否。
- 5. COM Port參數:9600 bps,8 Bit data, None parity, 1 stop Bit

### User Button / LED

STLink / VCP



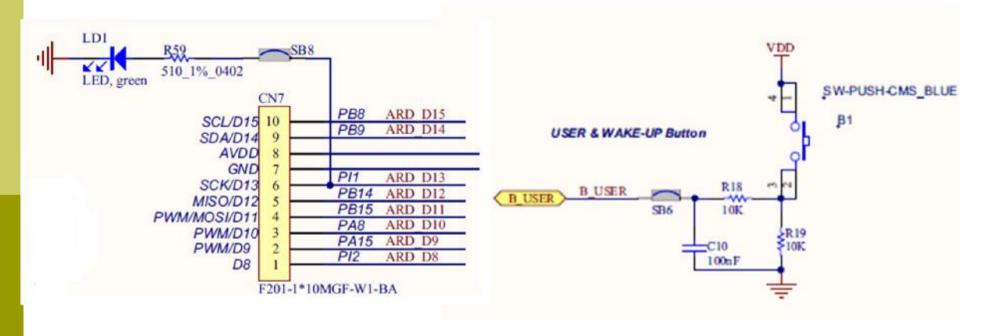
**User LED** 

**User Button** 

#### Button / LED I/O Define

USER BUTTON -> PI11

USER LED -> PI1



# UART(VCP) I/O Define

P UART TX -> PA9

D UART RX -> PB7

				U5A		- 2560		
No.	ARD_A0	PA0	N3	PA0-W	KUP PC0	M2	PC0	ULPI_STP
	RMII REF CLK	PAI	N2	PAI	PC1	M3	PC1	RMII_MDC
	RMII MDIO	PA2	P2	PA2	PC2	M4	PC2	ULPI DIR
<u> </u>	ULPI D0	PA3	R2	PA3	PC3	L4	PC3	FMC SDCKE0
	DCMI_HSYNC	PA4	N4	PA4	PC4	N5	PC4	RMII RXD0
<u> </u>	ULPI CK	PA5	P4	PA5	PC5	P5	PC5	RMII RXD1
	DCMI PIXCK	PA6	P3	PA6		H15	PC6	ARD DI
	RMII CRS DV	PA7	R3	PA7	PC6 PC7	G15	PC7	ARD D0
	ARD D10	PA8	F15	2000		G14	PC8	uSD_D0
VCP_TX 0 R64		PA9	E15	PA8 PA9	PC8 PC9	F14	PC9	uSD_D1
	OTG FS ID	PA10	D15	PA10		B14	PC10	uSD D2
OTG FS VBUS R63	OTG FS N	PAII	C15	PAII	PC10 PC11	B13	PC11	uSD D3
[NA]	OTG FS P	PA12	B15	PA11	PC12	A12	PC12	uSD CLK
[]	SWDIO	PA13	A15	PA13	PC13-ANTI TAMP	D1	PC13	uSD Detect
	SWCLK	PA14	A14	PA14	PCI3-ANTI_TAMP			
	ARD D9	PA15	A13	PA15				
	ULPI D1	PB0	R5		120.0	R6	PJ0	LCD R1
3V3 3V3	ULPI D2	PBI	R4	PB0	PJ0	R7	PJ1	LCD R2
T T OSPI CLK			M5	PB1	PJI	P7	PJ2	LCD R3
VOLT CER	PB2 0 <sub>W</sub>	PB3	A10	PB2	PJ2	N8	PJ3	LCD R4
R46 -R54	ARD D3	PB4	A9	PB3	PJ3	M9	PJ4	LCD R5
	ULPI D7	PB5	A8	PB4	PJ4	M14	PJ5	LCD R6
K7 1% 0402 2K7 1% 0402	OSPL NCS	PB6	B6	PB5	PJ5	K12	PJ6	LCD R7
	VCP RX	PB7	B5	PB6	PJ6	J12	PJ7	LCD G0
EXT SCL DCMI SCL			1.0	PB7	PJ7	H12	PJ8	LCD G1
the state of the s	ARD DIS	PBS	A7		TO SECURE			
EXT SDA DCMI SDA		PB8 PB9	A7 B4	PB8	PJ8			
EXT_SDA DCMI_SDA	ARD D14	PB9	B4	PB9	PJ9	J13	PJ9	LCD_G2
EXT_SDA DCMI_SDA	ULPI D3	PB9 PB10	B4 P12	PB9 PB10	PJ9 PJ10	J13 H13	PJ9 PJ10	LCD G2 LCD G3
EXT_SDA DCMI_SDA	ARD D14	PB9	B4	PB9	PJ9	J13	PJ9	LCD_G2

## 計分方式

- 1. 程式完成後請助教確認功能是否正確,並給予完 成順序號。
- 2. 檢查後立即將所有程式壓縮ZIP檔後上傳至 Moodle[繳交作業],並在檔名依序寫上實習題目 號碼、完成順序號、 學號。

(檔名:Lab\_1\_No\_xx\_學號.zip)

1. 計分標準依完成順序及程式內容給分,<u>若發現程</u> 式有互相抄襲狀況,該兩人分數皆為0分。

## 参考資料

- p Getting started with STM32F746G discovery software development tools.pdf
- STM32F746xx\_HAL\_User\_Manual.chm
- Description of STM32F7xx HAL drivers.pdf