# 實習題目-1 按鍵及UART/LCD控制

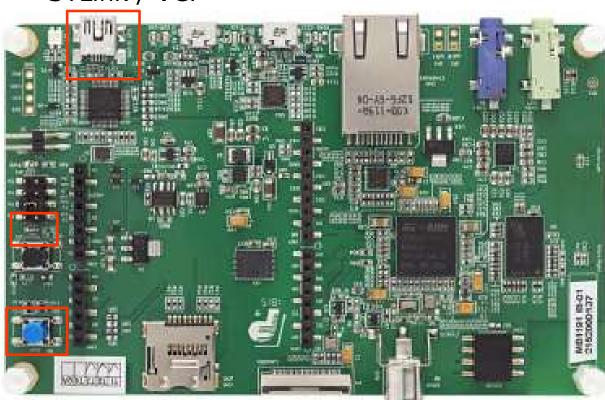
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### 題目功能

- □ USR BUTTON按鈕切換模式一與模式二、模式三,上電後LED OFF, LCD 為空白, COM Port不送字串
- □ COM Port參數:115200 bps, 8 Bit data, None parity, 1 stop Bit
- □ 模式一
  - LED每100ms閃爍一次
  - COM Port及LCD送出字串"MODE 1 , LED FLASH = 5Hz"顯示
- □ 模式二
  - LED每500ms閃爍一次
  - COM Port及LCD送出字串"MODE 2 , LED FLASH = 1Hz"顯示
- □ 模式三
  - LED OFF
  - COM Port及LCD送出字串"MODE 3 , LED FLASH = 0" 顯示

### User Button / LED

STLink / VCP

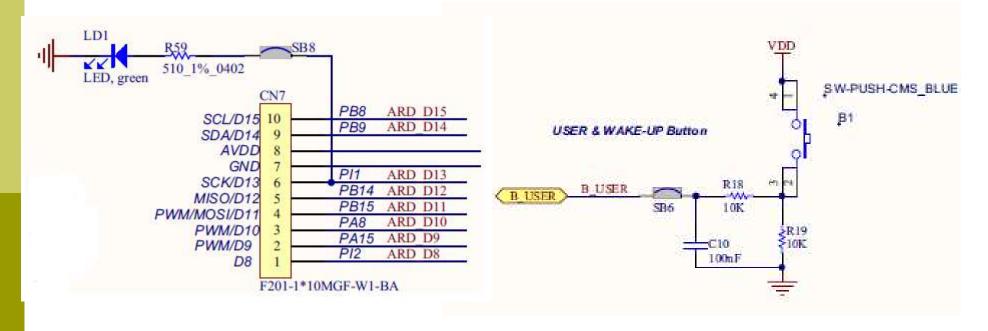


User LED

**User Button** 

### Button / LED I/O Define

- □ USER BUTTON -> PI11
- □ USER LED -> PI1



## UART(VCP) I/O Define

- □ UART TX -> PA9
- □ UART RX -> PB7

	ADD AO	DAG	NI2	U5A		3.62	DC0	THE DI CTD
	ARD_A0 RMII REF CLK	PA0 PA1	N3	PA0-W PA1 PA2	KUP PC0 PC1 PC2	M2 M3	PC0 PC1	ULPI_STP RMII_MDC
	A DESCRIPTION OF THE PROPERTY					7		
	RMII MDIO	PA2				M4	PC2	ULPI DIR
	ULPI D0	PA3	R2 PA3	PC3	L4	PC3	FMC SDCKE0	
<u> </u>	DCMI HSYNC	PA4	N4	PA4	PC4	N5	PC4	RMII RXD0
	ULPI CK	PA5	P4	PA5	PC5	P5	PC5	RMII_RXD1
	DCMI PIXCK	PA6	P3	PA6	PC6	H15	PC6	ARD D1
	RMII CRS DV	PA7	R3	PA7	PC7	G15	PC7	ARD D0
	ARD_D10	PA8	F15	PA8	PC8	G14	PC8	uSD_D0
VCP_TX 0 R64		PA9	E15	PA9	PC9	F14	PC9	uSD_D1
	OTG FS ID	PA10	D15	PA10	PC10	B14	PC10	uSD D2
OTG FS VBUS R63	OTG FS N	PA11	C15	PA11	PC11	B13	PC11	uSD D3
[NA]	OTG FS P	PA12		PA12	PC12	A12	PC12	uSD CLK
ATOMICA ST	SWDIO	PA13	A15	PA13	PC13-ANTI TAMP	D1	PC13	uSD Detect
<u> </u>	SWCLK	PA14	A14	PA14	TOD-ZUVII_IZUVII	1		
	ARD D9	PA15	A13	PA15				
	01/28-4-3020-00	1202007	22723	12115		0.2552	1221202	1272207-1273
Selection of the select	ULPI_D1	PB0	R5	PB0	PJÖ -	R6	PJ0	LCD_R1
3V3 3V3	ULPI D2	PB1	R4	PB1	PJ1	R7	PJ1	LCD R2
QSPI CLK	PB2 0 <sub>W</sub>	R44	M5	PB2	PJ2	P7	PJ2	LCD R3
Automotive Automotive Committee Comm	5110	1 113	A10	PB3	PJ3	N8	PJ3	LCD R4
R46 R54	ARD D3	PB4	A9	PB4	PJ4	M9	PJ4	LCD_R5
} }	ULPI D7	PB5	A8	PB5	PJ5	M14	PJ5	LCD R6
K7_1%_0402_2K7_1%_0402	OSPI NCS	PB6	B6	PB6	PJ6	K12	PJ6	LCD R7
	VCP_RX	PB7	B5	PB7	PJ7	J12	PJ7	LCD G0
EXT_SCL DCMI_SCL	ARD DIS	PB8	A7	PB8	PJ8	H12	PJ8	LCD_G1
EXT_SDA DCMI_SDA	ARD D14	PB9	B4	PB9	PJ9	J13	PJ9	LCD G2
W.	ULPI D3	PB10	P12	PB10	PJ10	H13	PJ10	LCD G3
	C 10 1 1 1 1 1 1							
	ULPI D4	PB11	R13	THE RESERVE AND ADDRESS OF THE PARTY OF THE		G12	PJ11	LCD G4
		PB11 PB12	R13	PB11 PB12	PJ11 PJ12	G12 B10	PJ11 PJ12	LCD G4 R58 100

#### **BSP LCD Function**

- BSP\_LCD\_Init
- BSP\_LCD\_Clear
- BSP\_LCD\_DisplayStringAtLine

## 計分方式

- □程式完成後請助教確認功能是否正確,並給予完成 順序號。
- □檢查後立即將所有程式壓縮7Z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.7z)

□計分標準依完成順序及程式內容給分,<u>若發現程式</u> 有互相抄襲狀況,該兩人分數皆為0分。未上傳程 式碼會視同抄襲此次成績0分。

## 參考資料

- Getting started with STM32F746G discovery software development tools.pdf
- STM32F746xx\_HAL\_User\_Manual.chm
- Description of STM32F7xx HAL drivers.pdf
- STM32746G-Discovery\_BSP\_User\_Manual.chm
- LCD-TFT display controller (LTDC) on STM32 MCUs.pdf