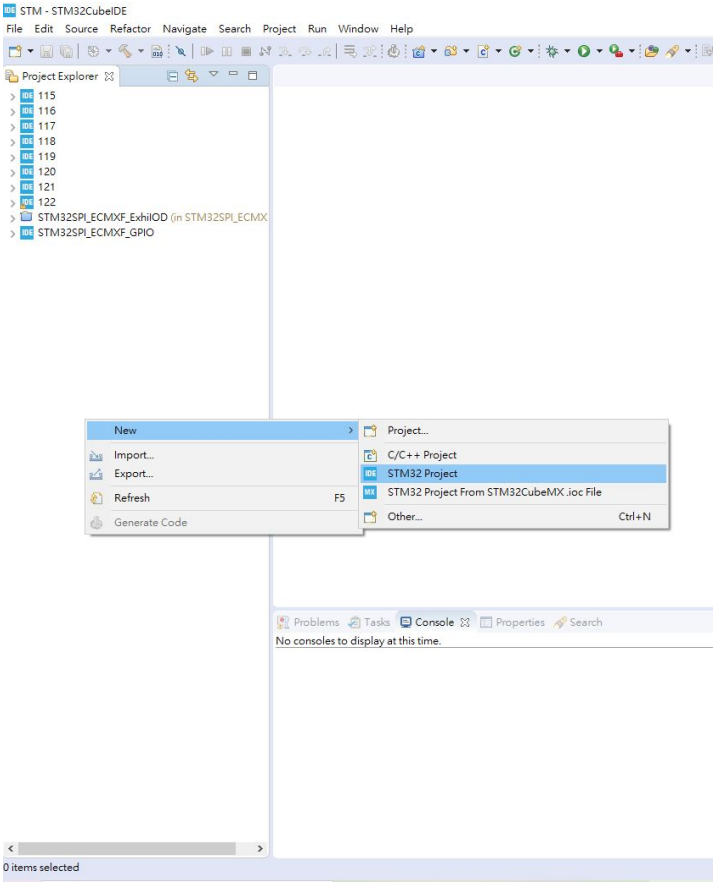
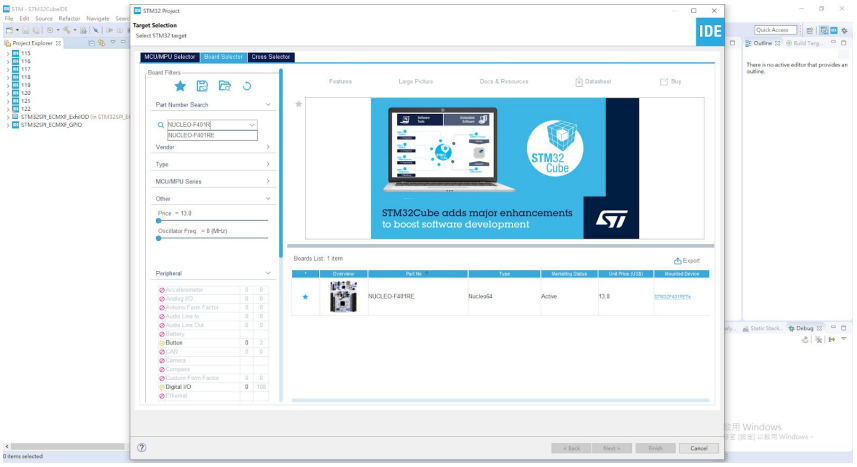
STM32 Setup Instruction (NUCLEO-F401RE)

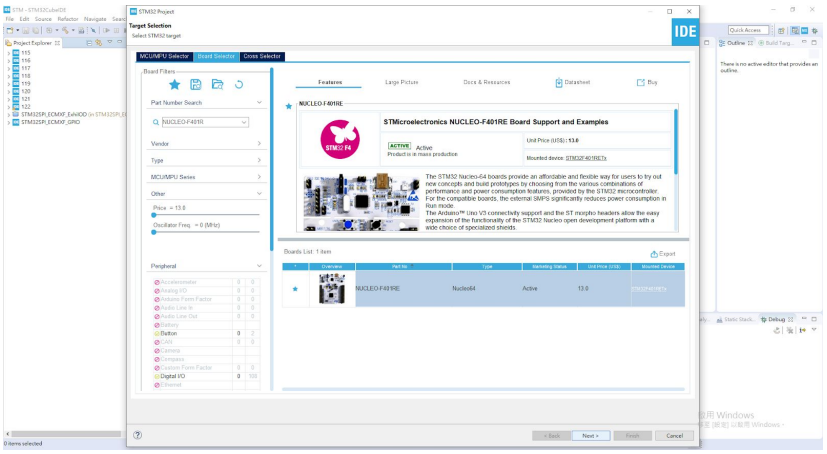
1. Open STM32Cube IDE.
2. Right click and select “STM32 Project”.



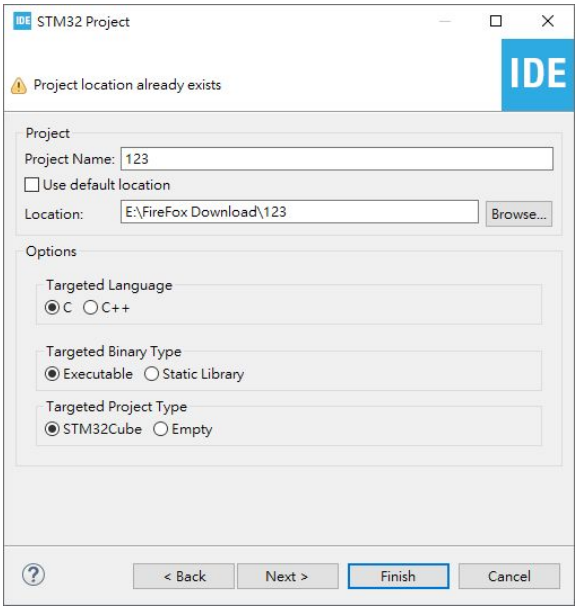
3. Select the board you have. For example, the selected board is NUCLEO-F401RE.



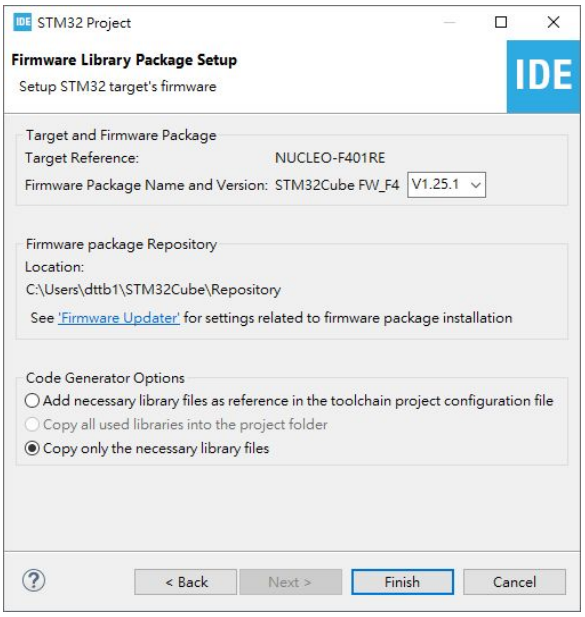
4. Then click “Next” to continue setup.



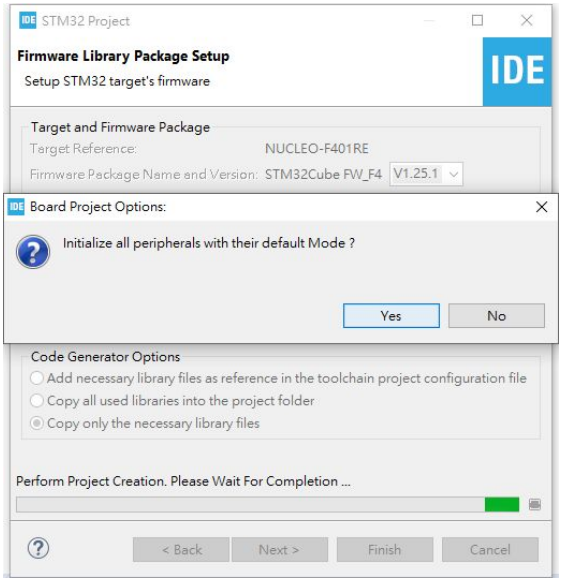
5. Insert the project name and decide project location.



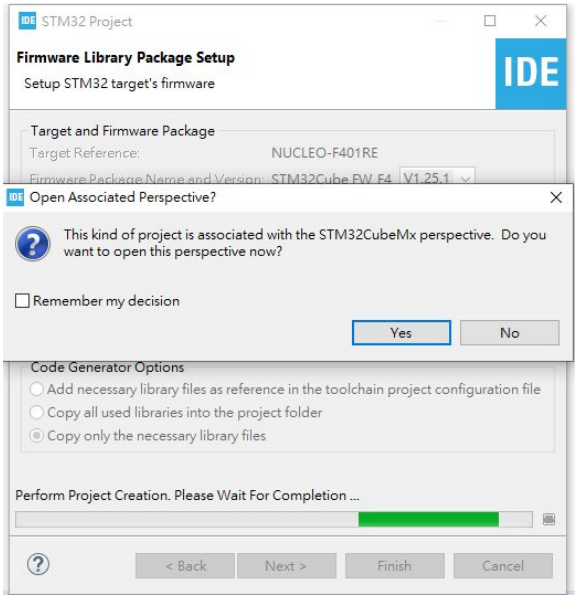
6. Choose firmware then click “Finish”. If you don’t have the firmware you are selected, the system will process to download the firmware.



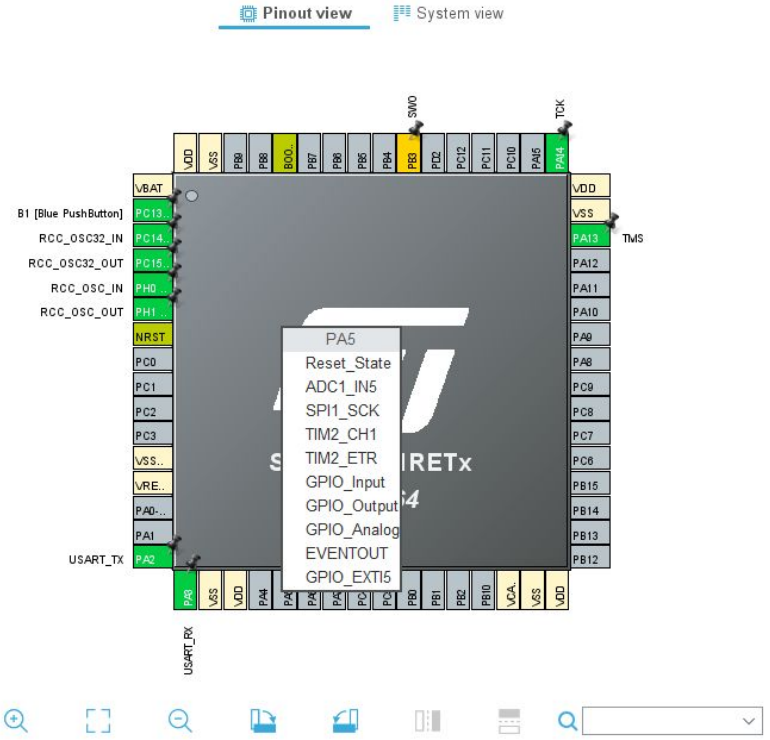
7. Initialize all peripherals with their default Mode? click “Yes”.

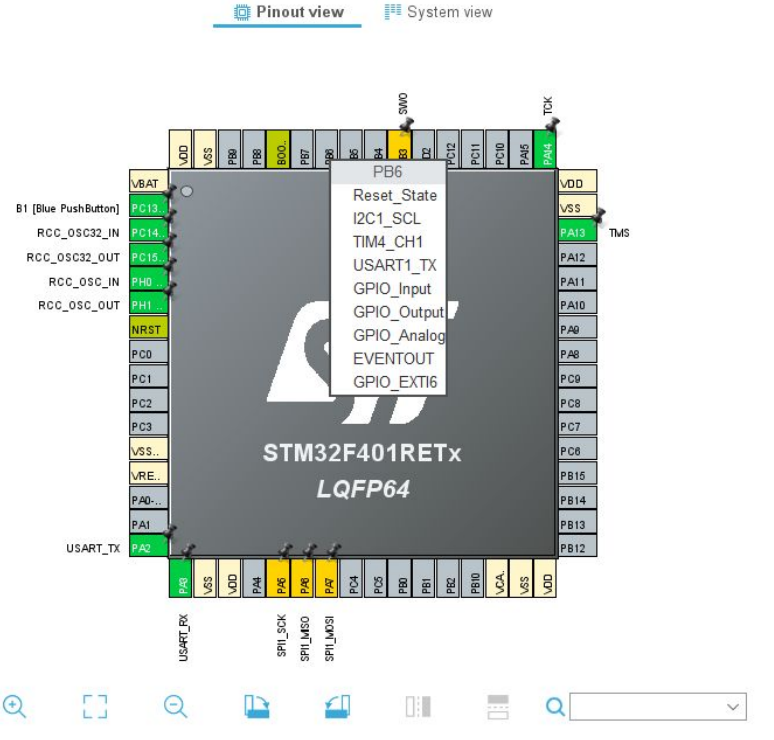


8. Open the STM32CubeMx for pinout define.

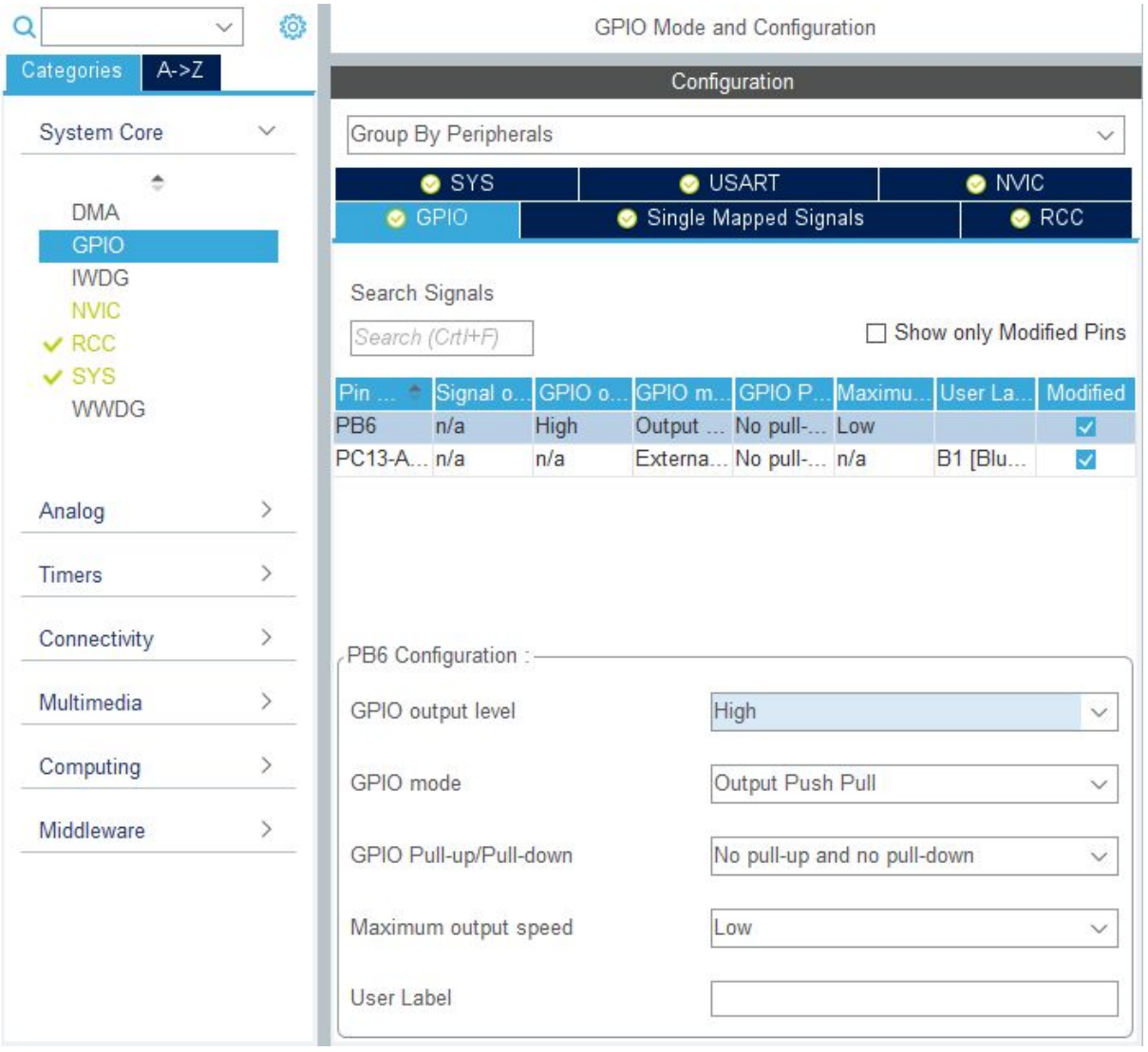


9. In pinout view, choose the SPI1_SCK at PA5, SPI1_MISO at PA6, SPI1_MOSI at PA7, GPIO_Output at PB6.

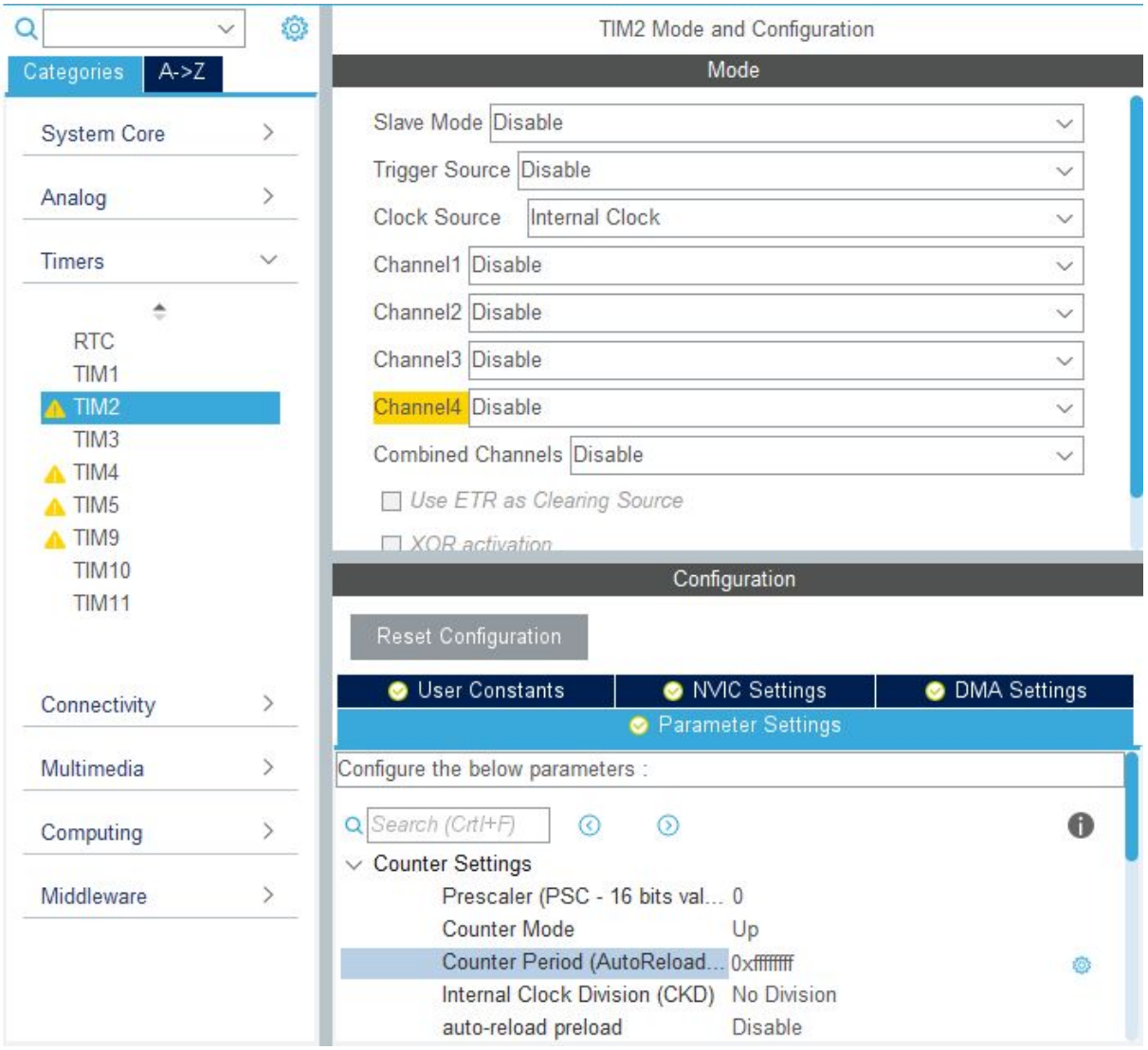




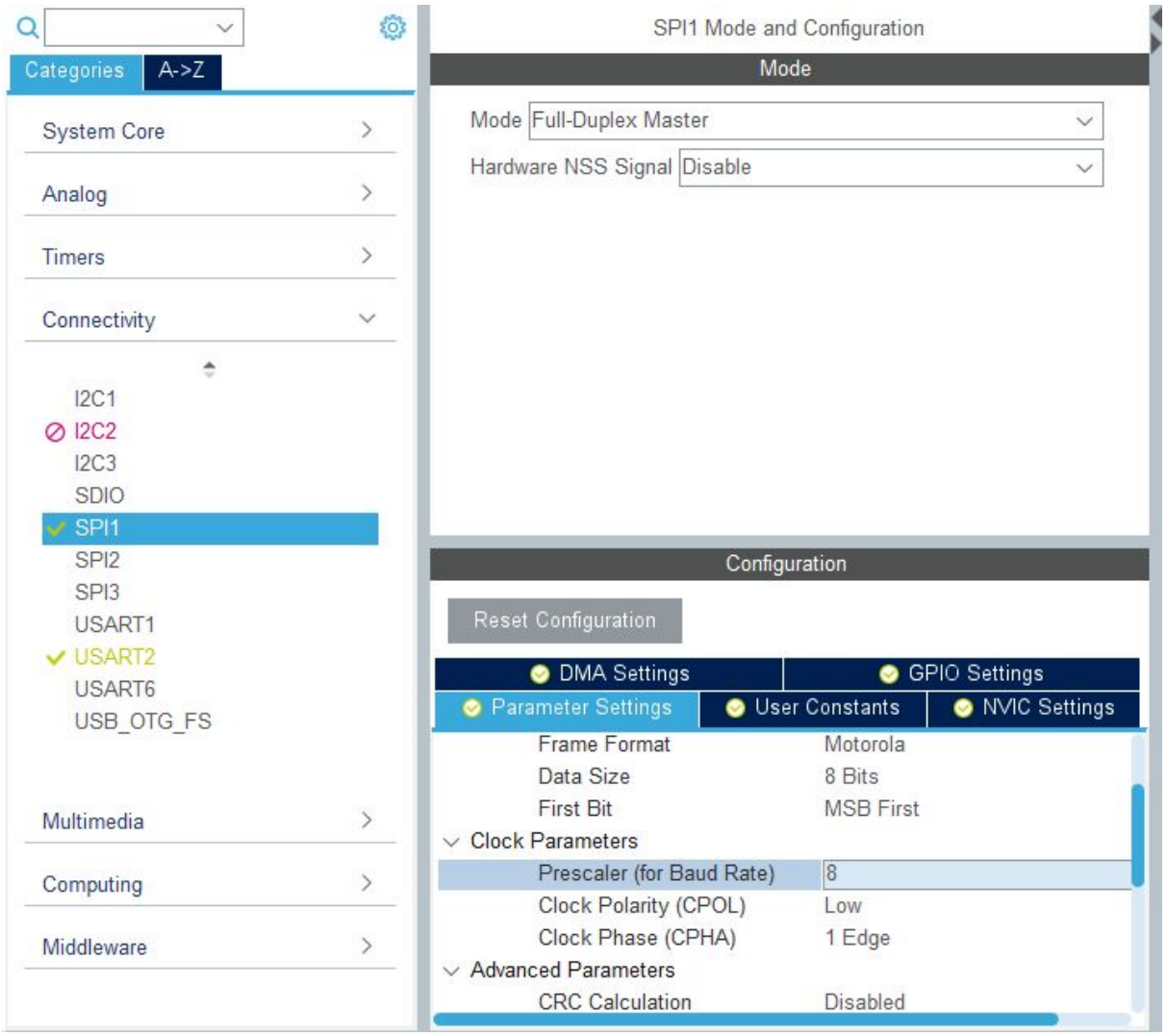
10. Then click “System Core” for further GPIO setting, change “GPIO output level” to “High”.



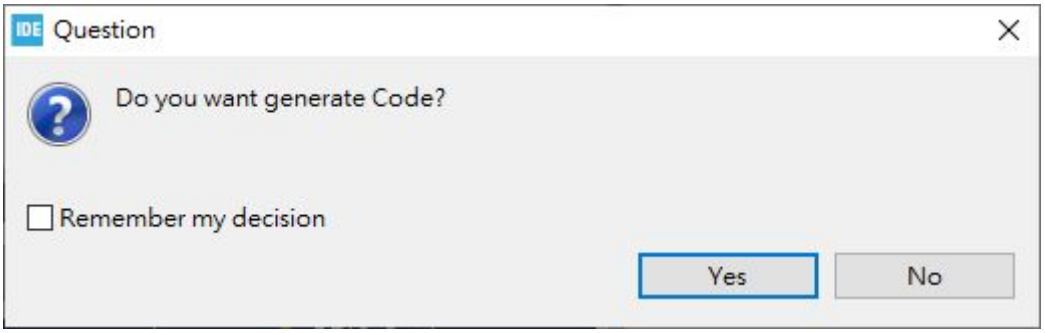
11. Move to “TIM2” in “Timers”. Define “Clock Source” as “Internal Clock” and input “0xFFFFFFFF” in “Counter Period”.



12. Switch to “SPI1” in “Connectivity”, choose mode into “Full-Duplex Master” and set “8” for “Prescaler (for Baud Rate).



13. After finishing all setting, press the button to save and generate the code.



14. If you find the following code setup by system in your Private variables means you got all the sample code function needed.

```
/* Private variables ---------------------------------------------------------*/
SPI_HandleTypeDef hspi1;

TIM_HandleTypeDef htim2;

UART_HandleTypeDef huart2;
```

15. Open “main.h” and add sample code show as below:

```
/* USER CODE BEGIN Includes */
#include "platform.h"
#include "EcmUsrDriver.h"
/* USER CODE END Includes */


/* Exported macro ------------------------------------------------------------*/
/* USER CODE BEGIN EM */
#ifndef PRINTF
#define PRINTF( str, ...) \
    do{ \
        int n; \
        n = sprintf( printbuf, (str), ##__VA_ARGS__); \
        HAL_UART_Transmit( &huart2, (uint8_t *)printbuf, n, 0xffffffff); \
    }while(0)
#endif
#ifndef GETCHAR
#define GETCHAR userGetchar
#endif
/* USER CODE END EM */


/* USER CODE BEGIN EFP */
extern UART_HandleTypeDef huart2;
extern char printbuf[];
/* USER CODE END EFP */
```

16. Open “main.c” and add setting show as following pictures:

```
/* USER CODE BEGIN PFP */
char printbuf[128];
int main_ini(void);
/* USER CODE END PFP */


/* USER CODE BEGIN 2 */
main_ini();
/* USER CODE END 2 */


/* USER CODE BEGIN TIM2_Init 2 */
HAL_TIM_Base_Start(&htim2);
/* USER CODE END TIM2_Init 2 */
```

17. Copy the files: EcmDriver.h, EcmUsrDriver.h, PdoDefine.h, and platform.h into your corresponding “Inc” file.
18. Copy the files: crc32.c, EcmUsrDriver.c, main_ini.c, and platform.c into your corresponding “Src” file.
19. Ready to run sample code.