UCSD Embedded C Assignment 6

By

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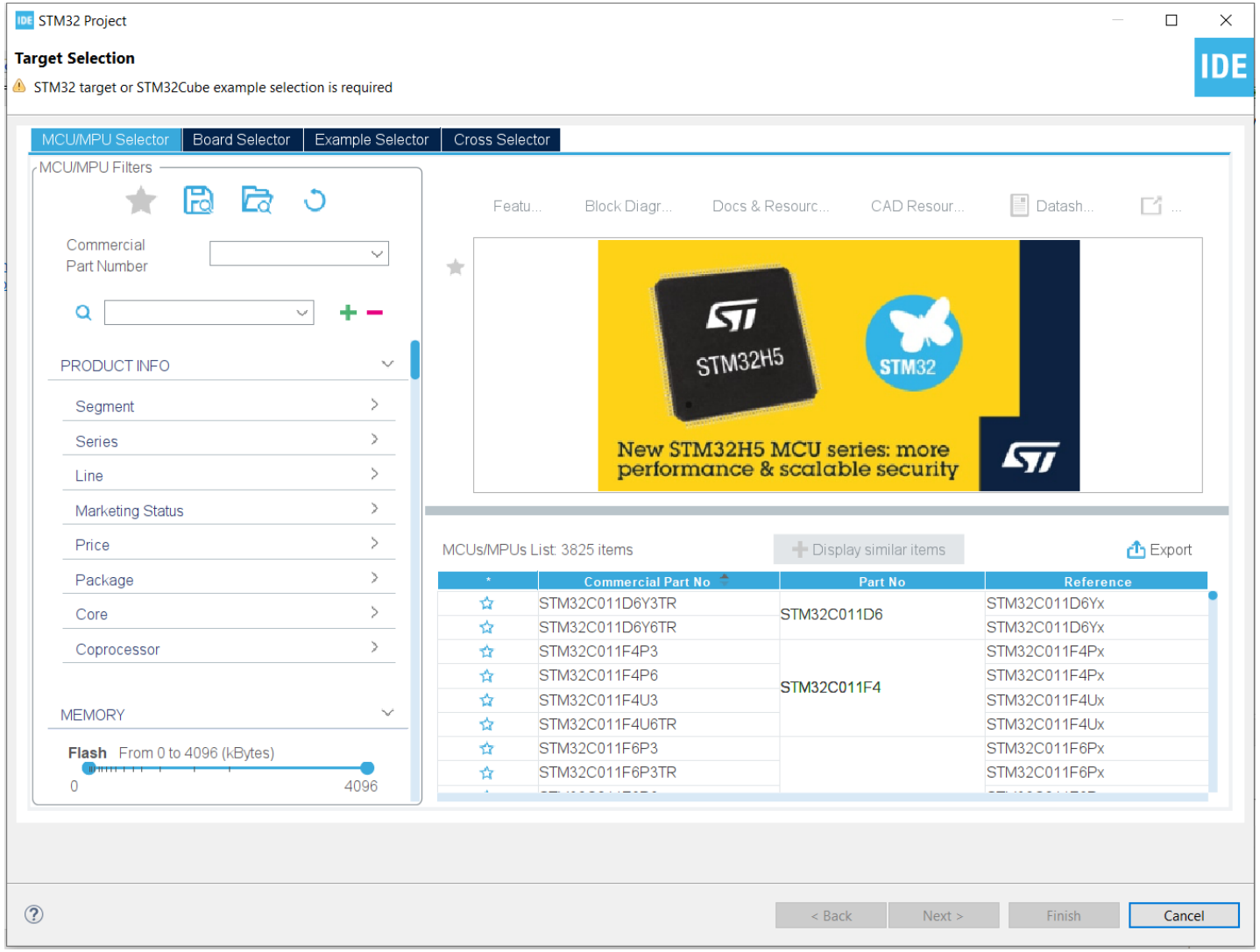
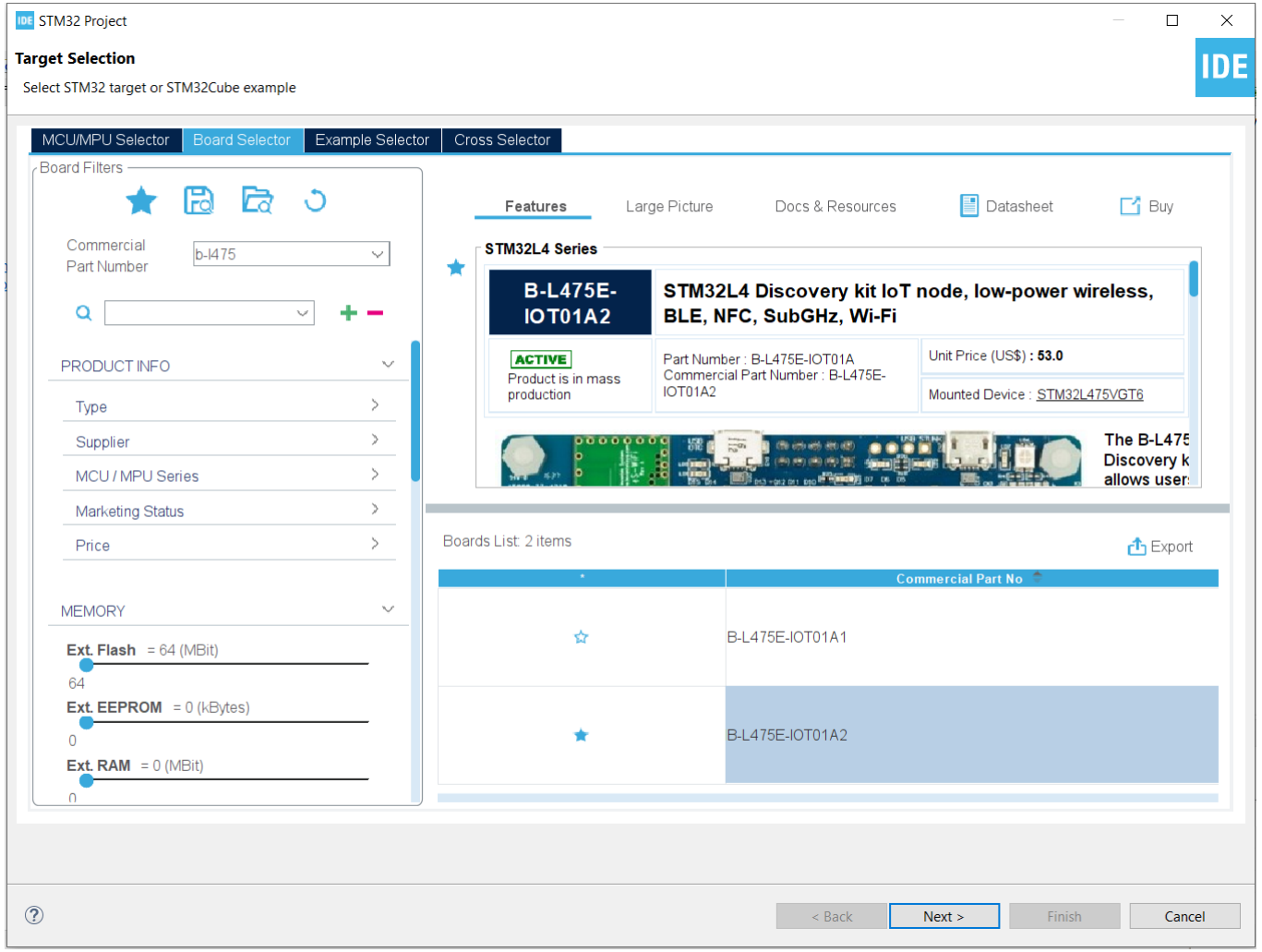
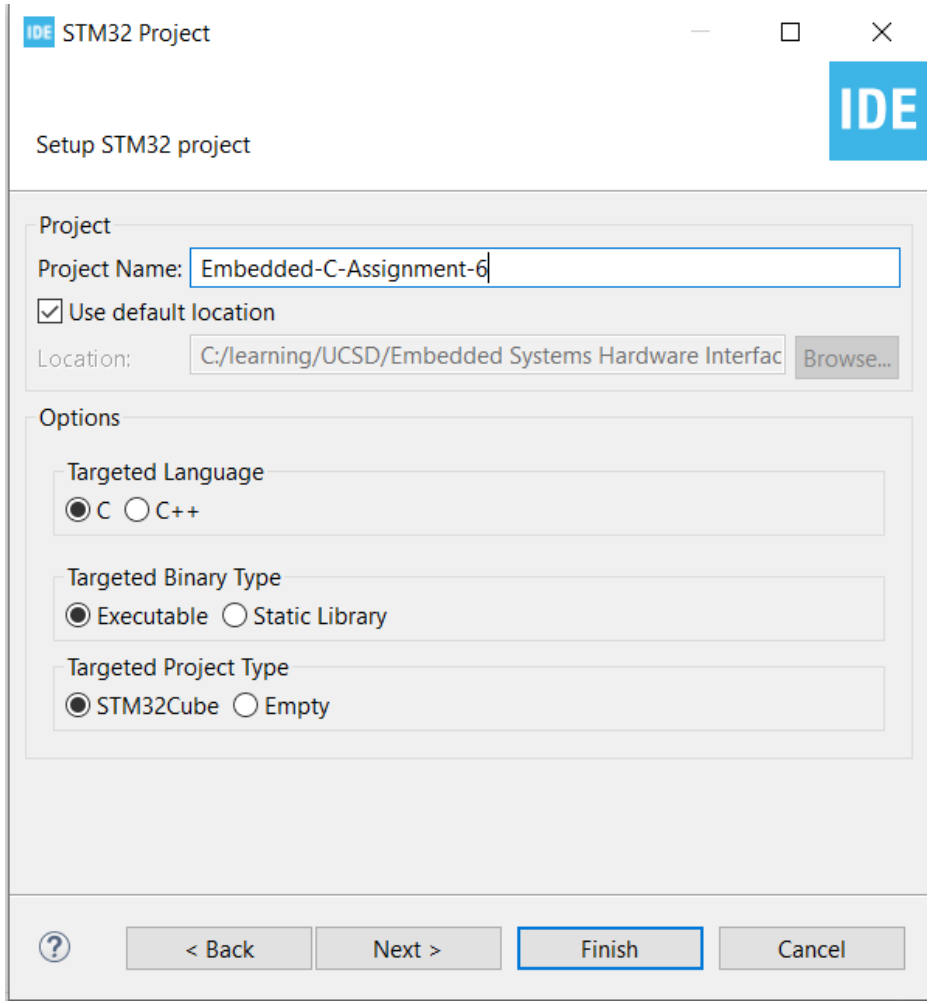
Step 1. Startup STM32CubeIDE and create new STM32 project



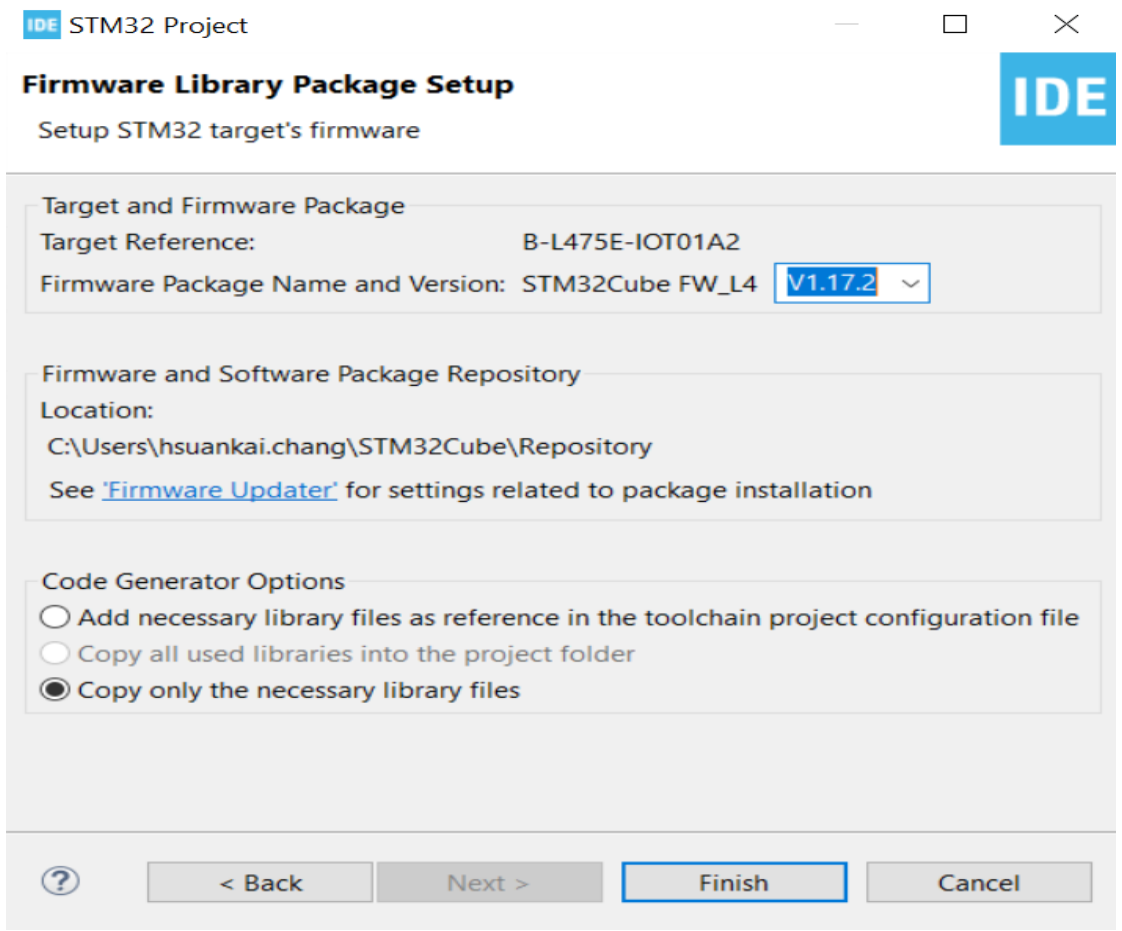
Step 2. Access board selector and type in the board you use, click Next



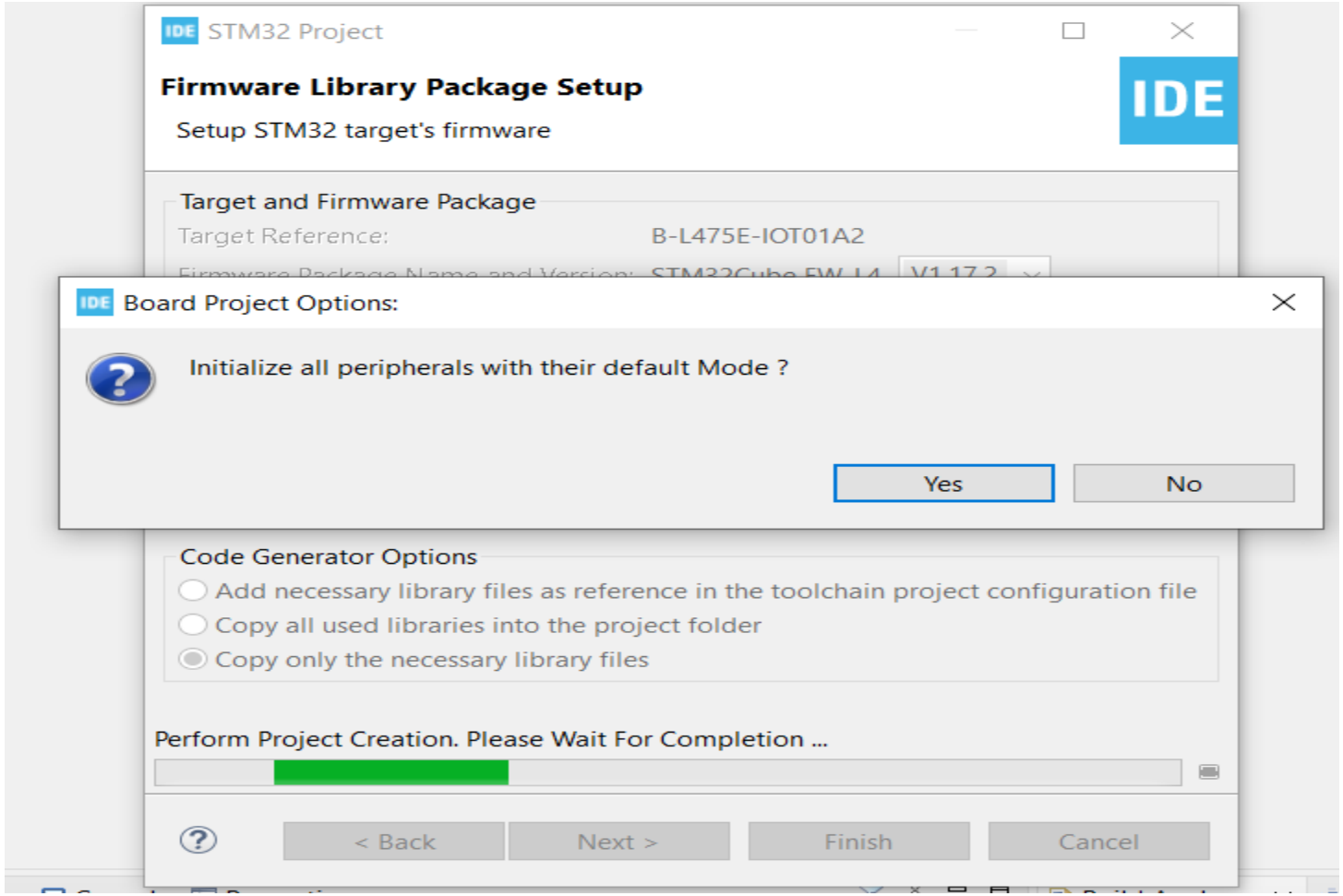
Step 3. Enter the project name then click Next



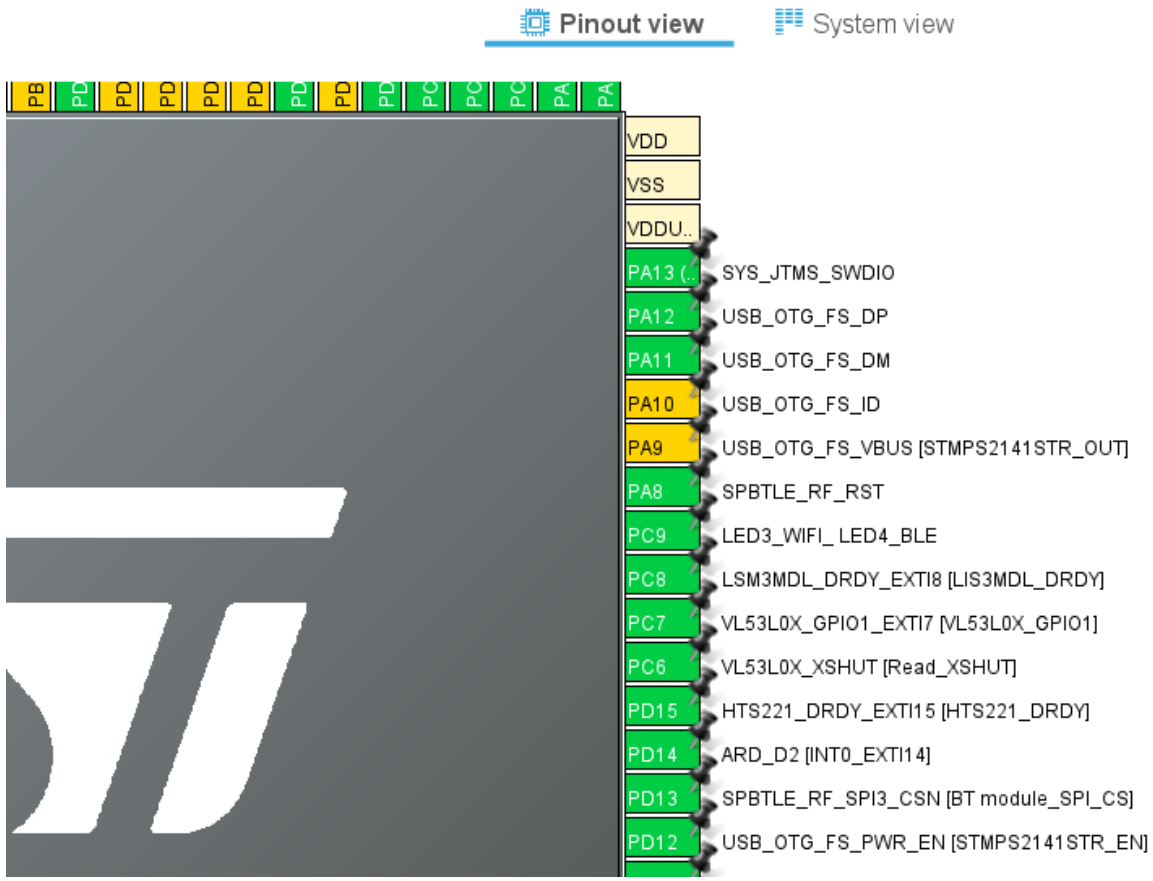
Step 4. See the firmware package name and version



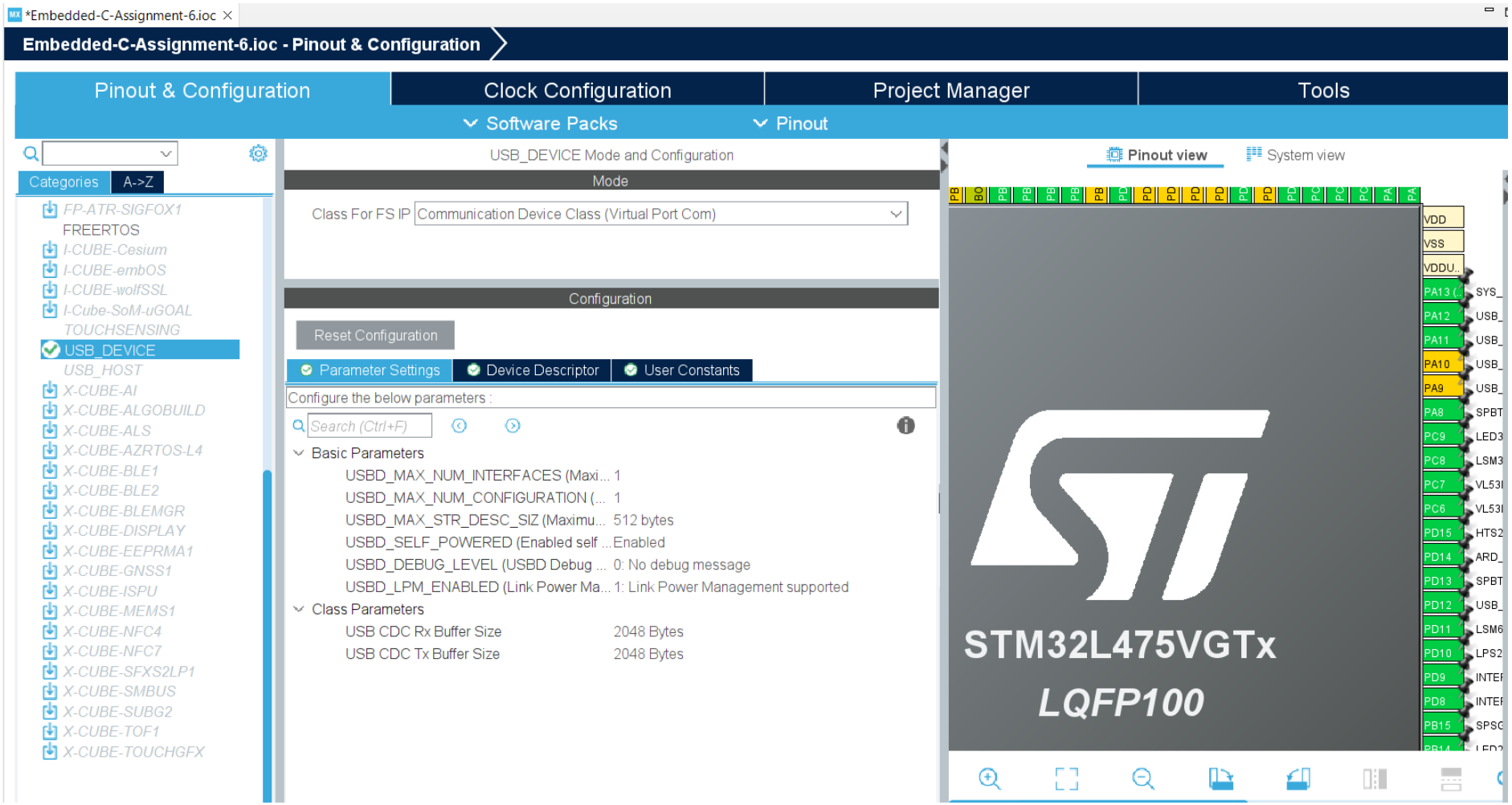
Step 5. Click yes to initialize all peripherals to default



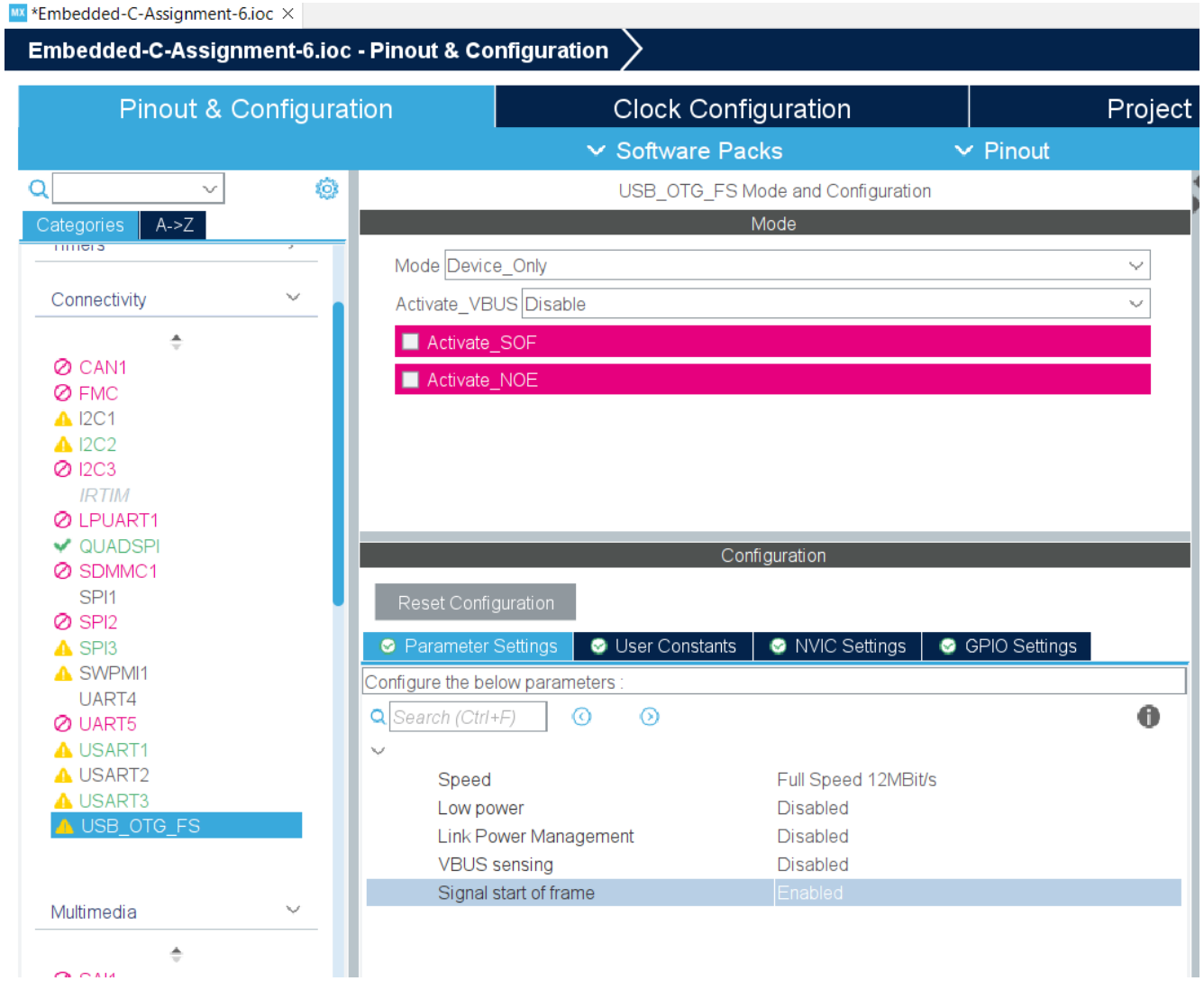
Step 6. When in .ioc file, keep defaults USB OTG settings



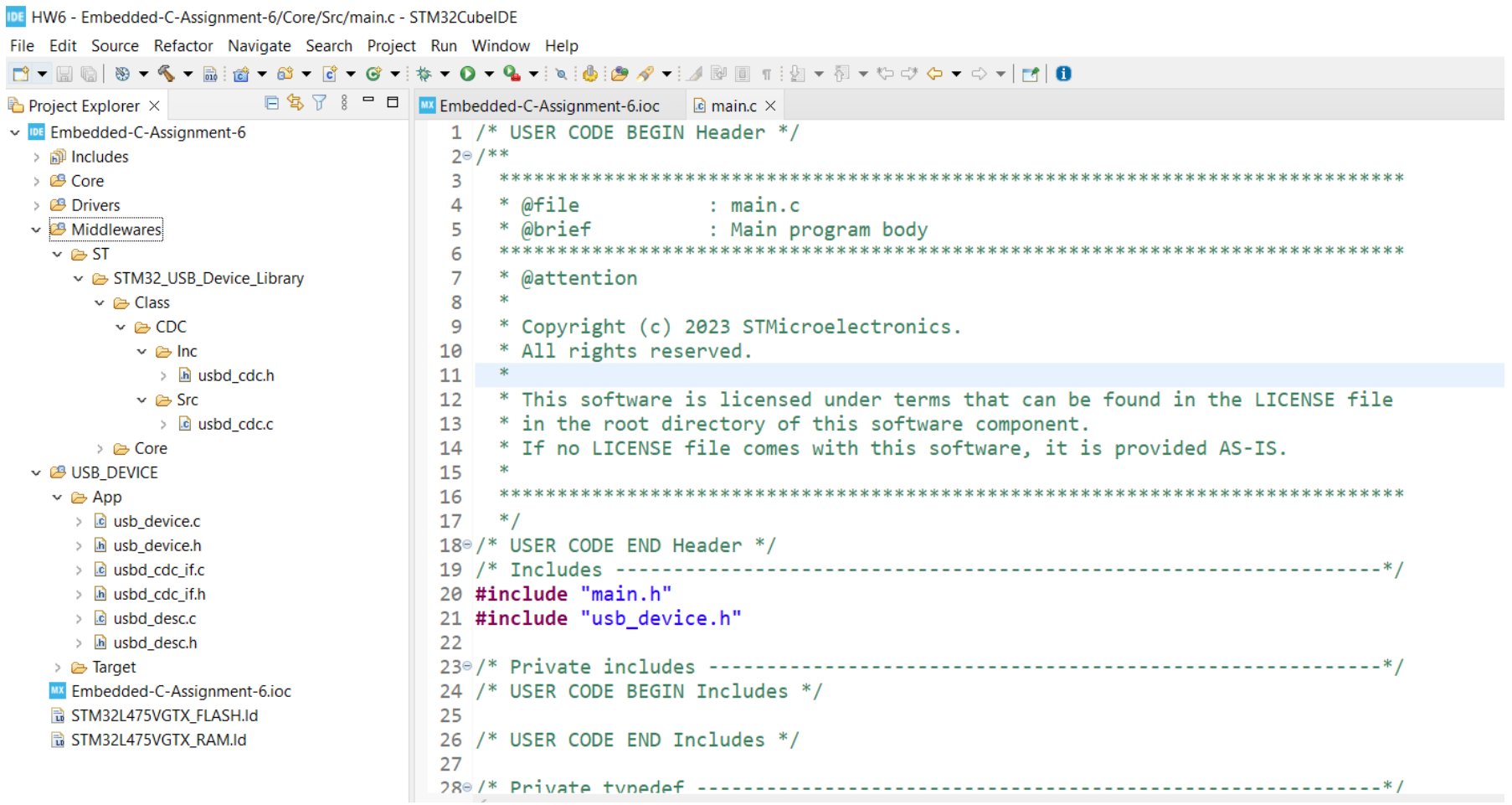
Step 7. Add middleware for virtual COM port, and use the default parameter settings



Step 8. Connectivity - USB_OTG_FS -Signal Start of Frame - Enabled



Step 9. Result of code generation



Step 10. Add code to main.c file

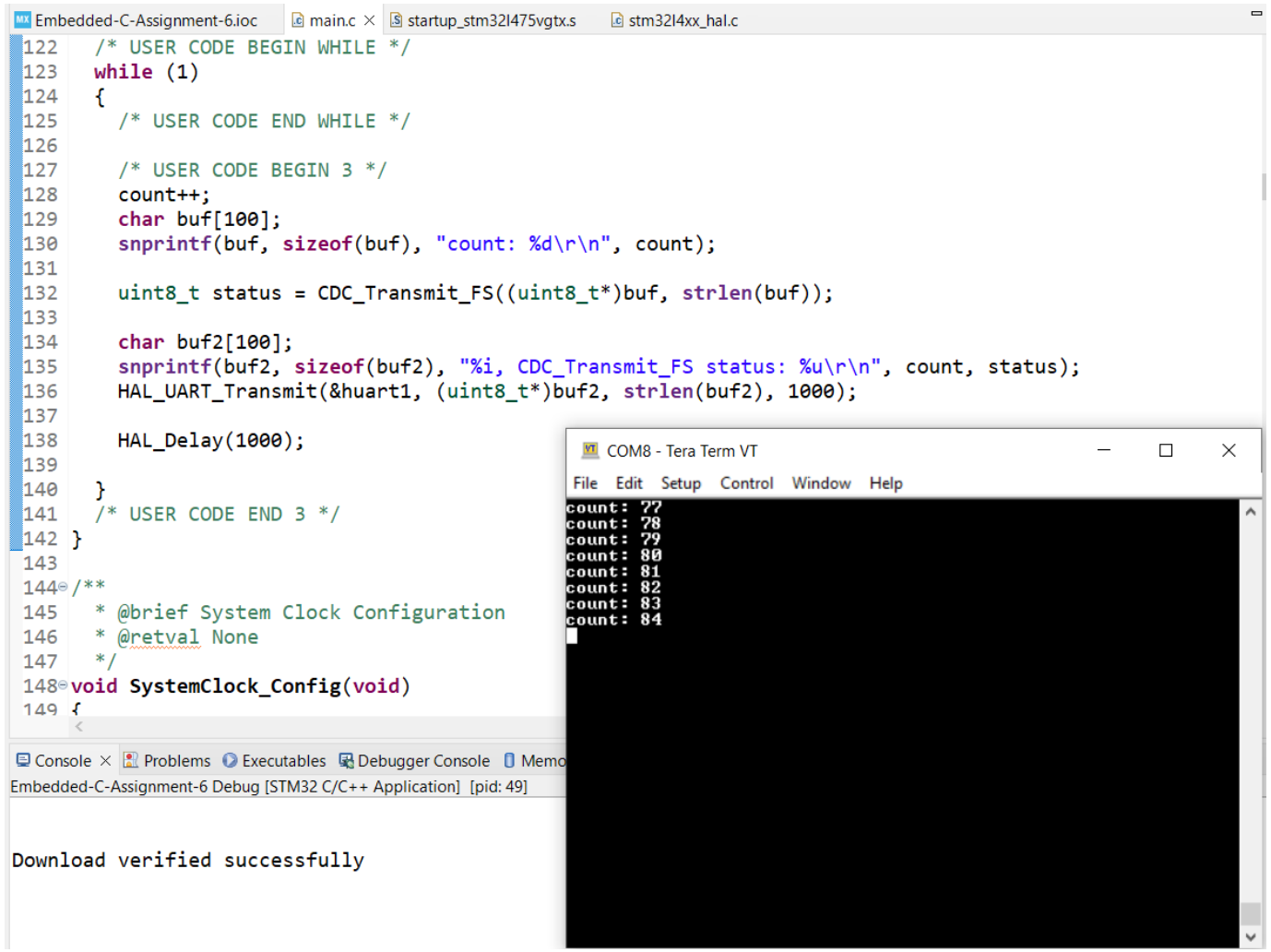
Embedded-C-Assignment-6.ioc | main.c

```
112   MX_QUADSPI_Init();
113   MX_SPI3_Init();
114   MX_USART1_UART_Init();
115   MX_USART3_UART_Init();
116   MX_USB_DEVICE_Init();
117   /* USER CODE BEGIN 2 */
118   int count = 0;
119   /* USER CODE END 2 */
120
121   /* Infinite loop */
122   /* USER CODE BEGIN WHILE */
123   while (1)
124   {
125     /* USER CODE END WHILE */
126
127     /* USER CODE BEGIN 3 */
128     count++;
129     char buf[100];
130     snprintf(buf, sizeof(buf), "count: %d\r\n", count);
131
132     uint8_t status = CDC_Transmit_FS((uint8_t*)buf, strlen(buf));
133
134     char buf2[100];
135     snprintf(buf2, sizeof(buf2), "%i, CDC_Transmit_FS status: %u\r\n", count, status);
136     HAL_UART_Transmit(&huart1, (uint8_t*)buf2, strlen(buf2), 1000);
137
138     HAL_Delay(1000);
139
140   }
```

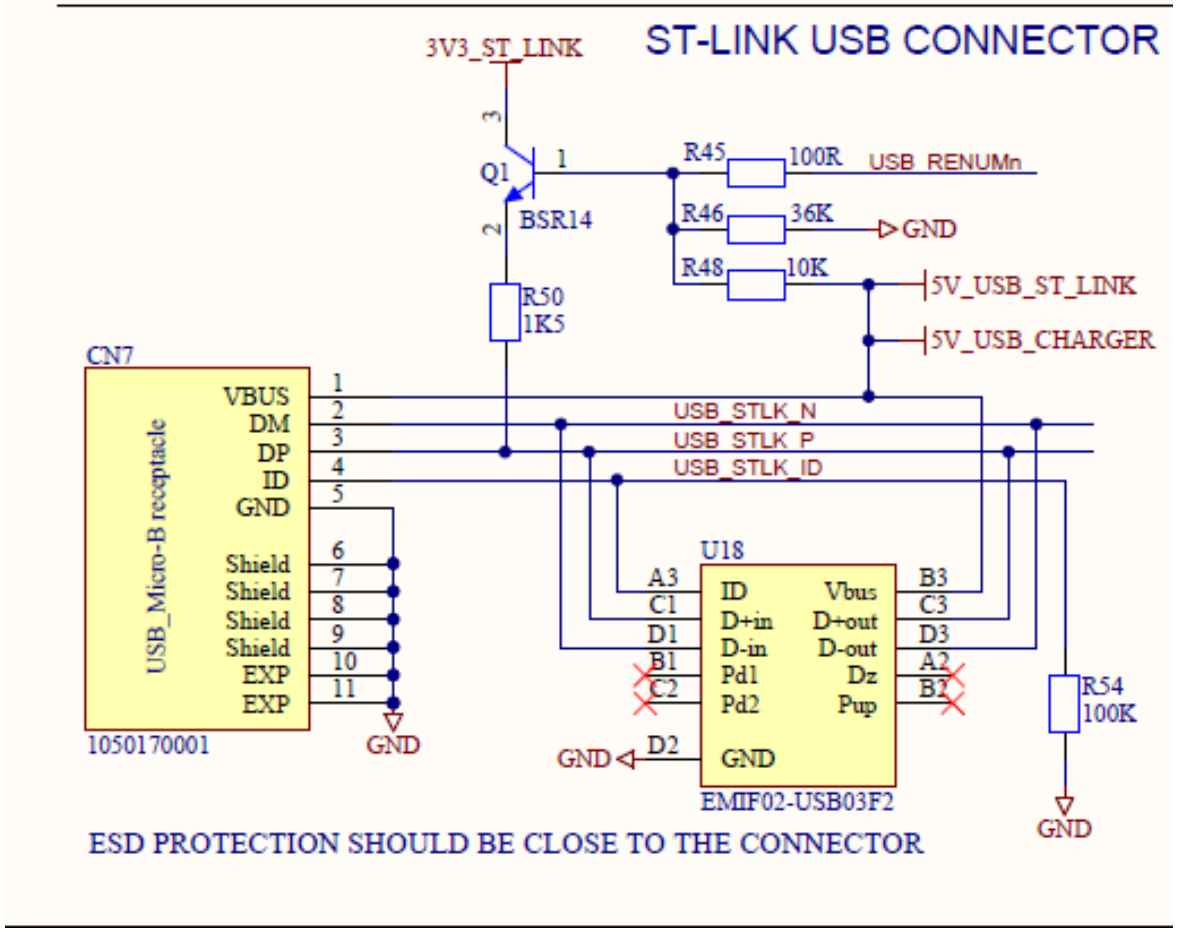
```
18 /* USER CODE END Header */
19 /* Includes ------------------------
20 #include "main.h"
21 #include "usb_device.h"
22
23 /* Private includes ----------------
24 /* USER CODE BEGIN Includes */
25 #include <stdio.h>
26 #include <string.h>
27 #include "usbd_cdc_if.h"
28 #include "usbd_cdc.h"
29 #include "usbd_core.h"
30 #include "usbd_desc.h"
31 /* USER CODE END Includes */
32
```

Step 11. Build and run the code, see a new COM port appear

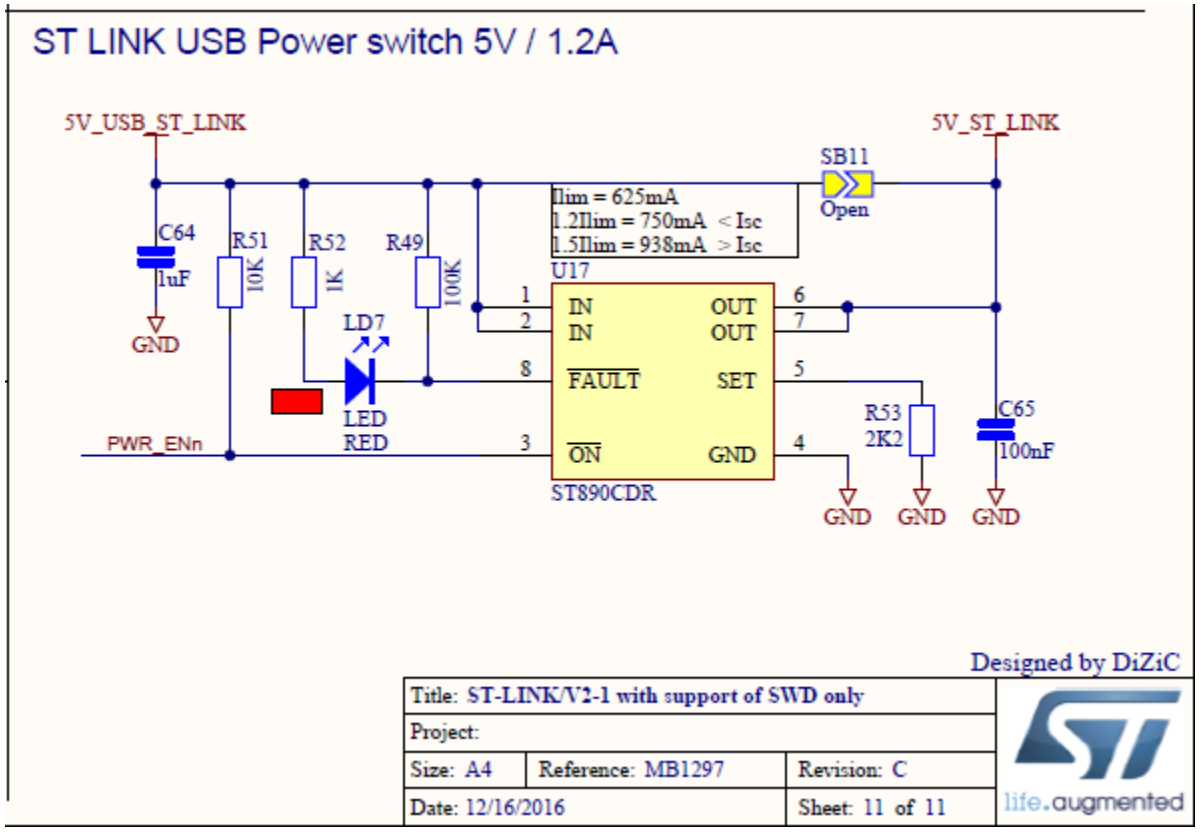
Step 12. Test on the new COM port, Tx is successful



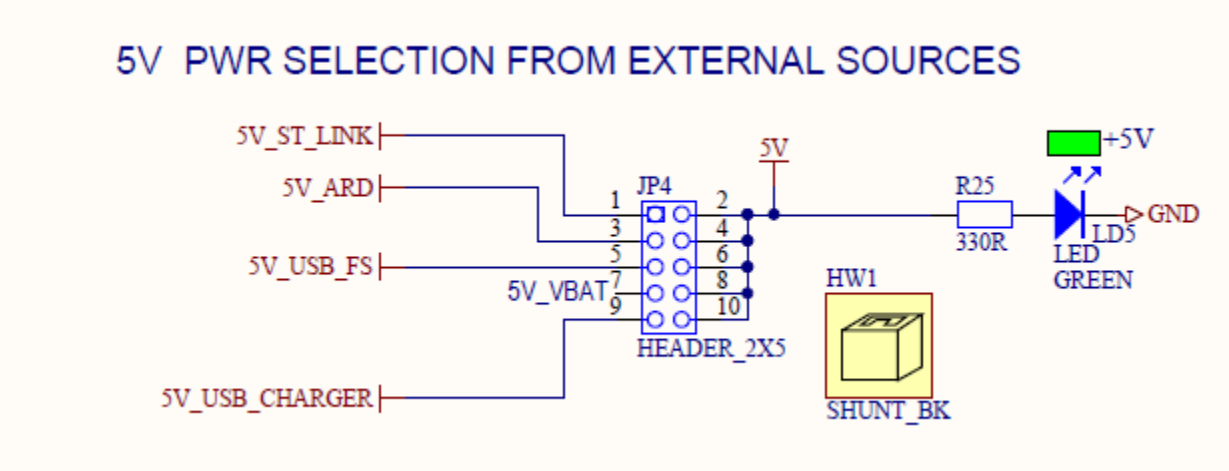
Appendix, schematic for ST-LINK USB Connector



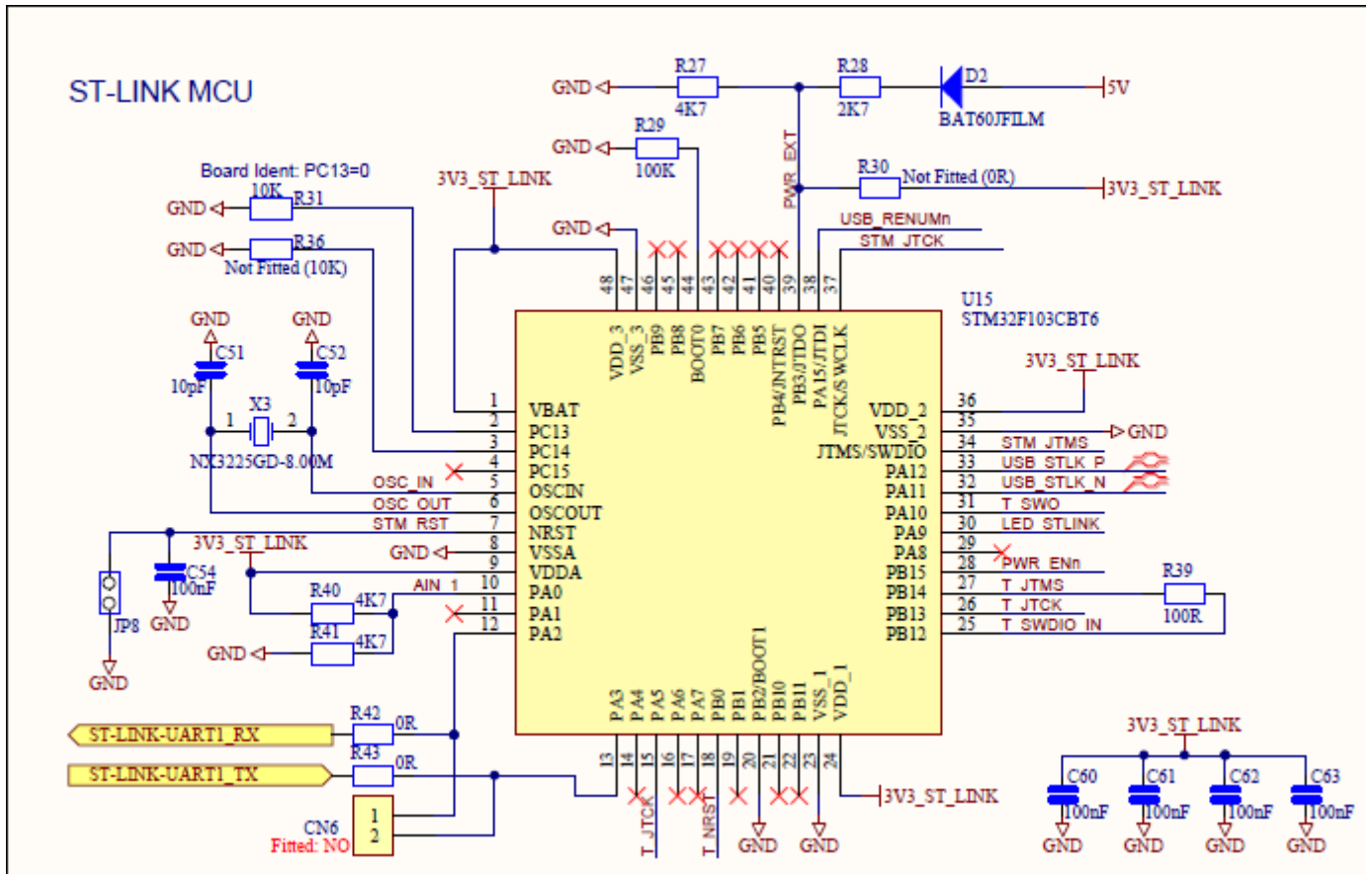
Appendix, schematic for ST-LINK Power Switch



Appendix, schematic for 5V PWR SELECTION



Appendix, schematic for ST-LINK MCU



Appendix, schematic for USB_OTG_FS