STM32 세미나
2. GPIO INPUT & INTERRUPT

Project1.ioc - Pinout & Configuration

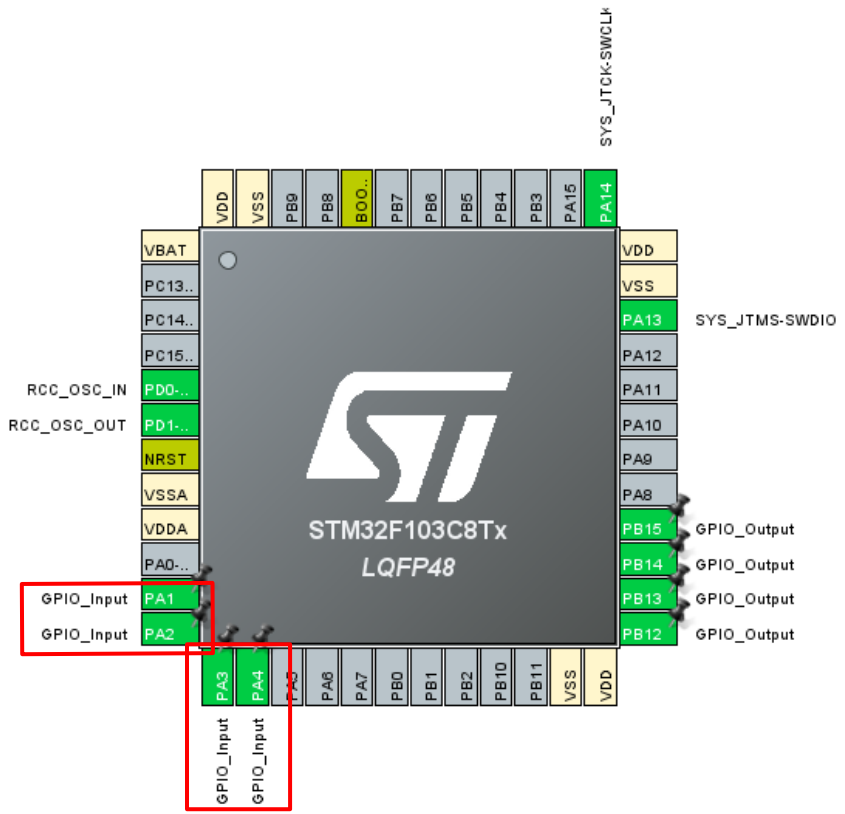
Pinout & Configuration | Clock Configuration | Project Manager | Tools

Software Packs | Pinout

Categories | A->Z

- System Core
- Analog
- Timers
- Connectivity
- Computing
- Middleware and Software Pac...

Pinout view | System view



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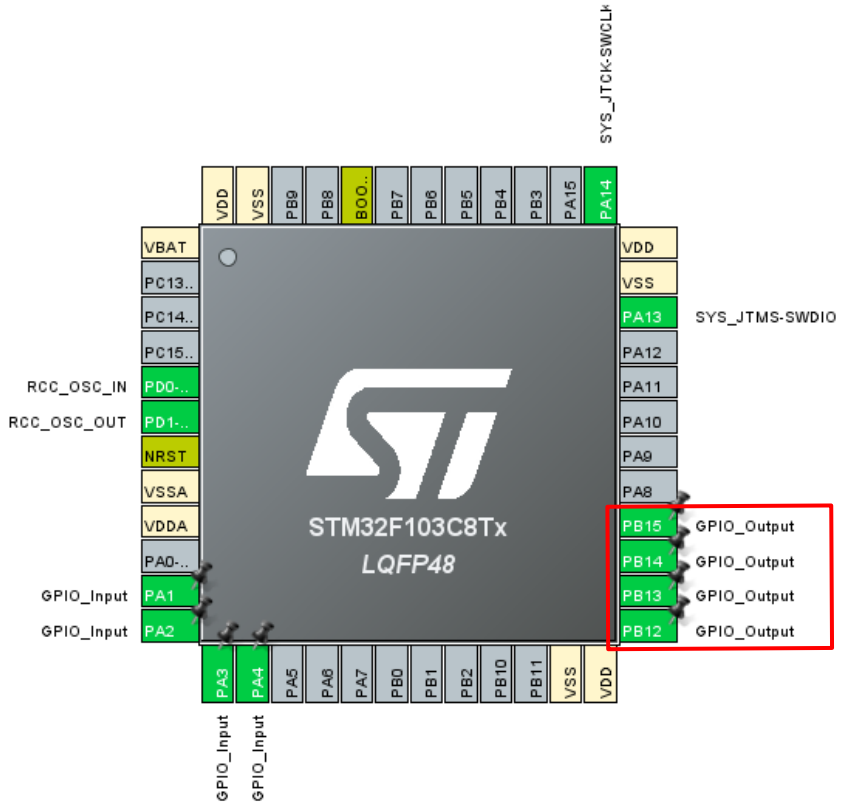

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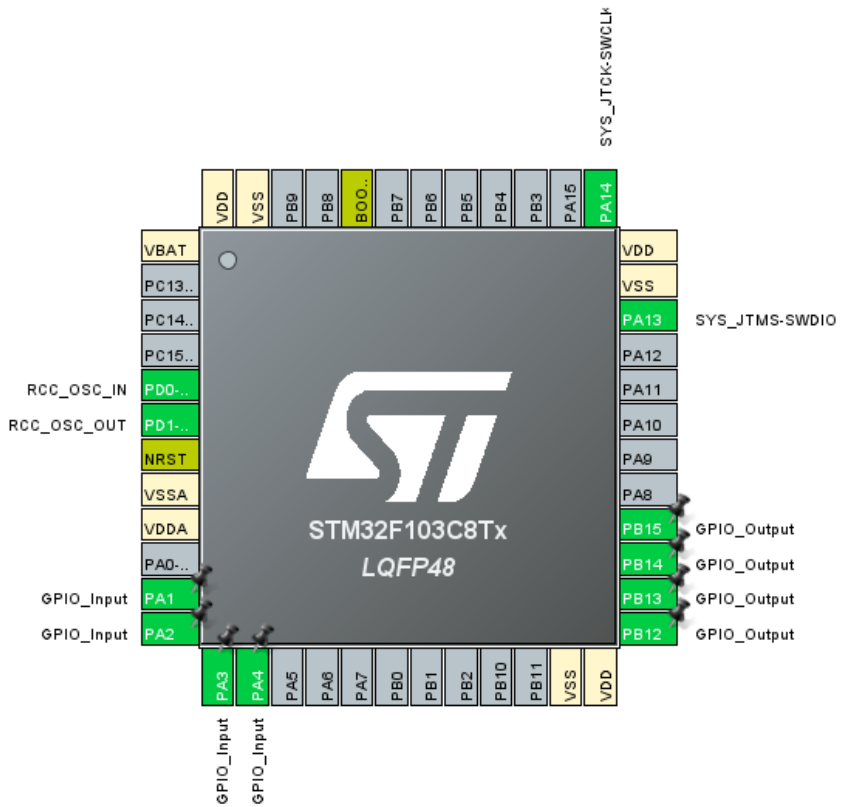
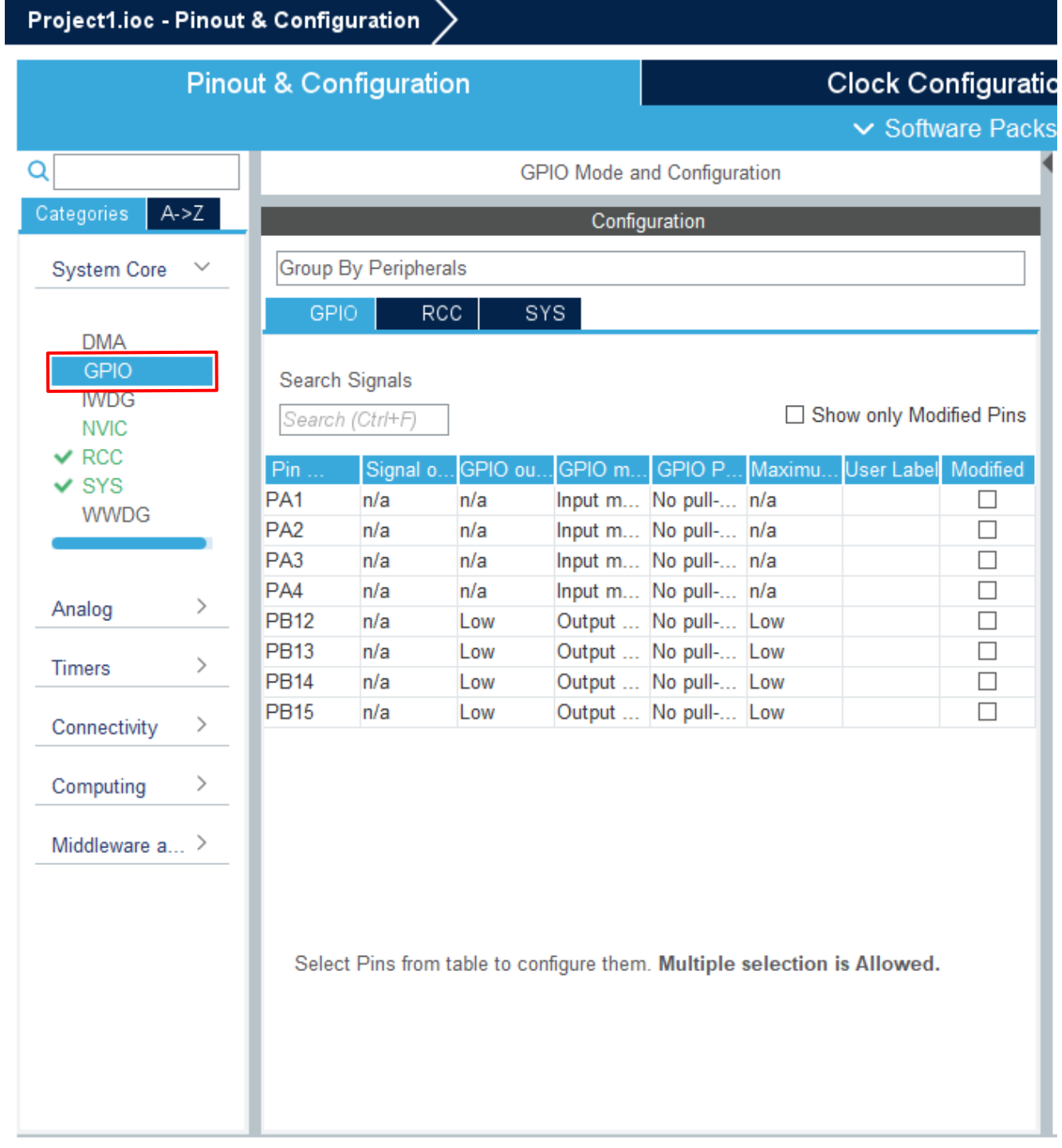
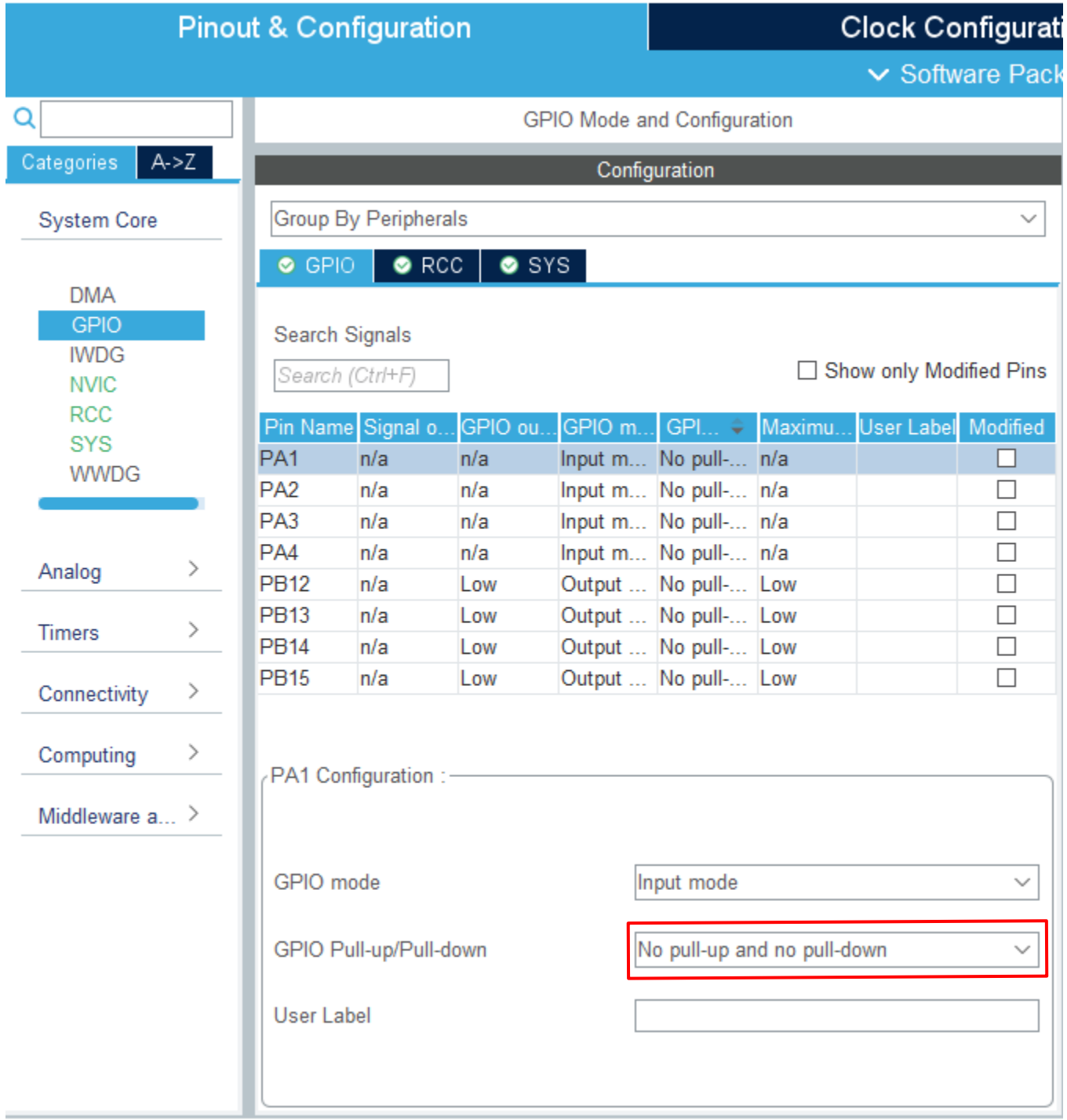



Project1.ioc - Pinout & Configuration
Pinout & Configuration
Clock Configuratio
Software Packs
Categories
A->Z
System Core
DMA
GPIO
IWDG
NVIC
RCC
SYS
WWDG
Analog
Timers
Connectivity
Computing
Middleware a...
GPIO Mode and Configuration
Configuration
Group By Peripherals
GPIO
RCC
SYS
Search Signals
Search (Ctrl+F)
Show only Modified Pins
Pin ...
Signal o...
GPIO ou...
GPIO m...
GPIO P...
Maximu...
User Label
Modified
PA1 n/a n/a Input m... No pull-... n/a
PA2 n/a n/a Input m... No pull-... n/a
PA3 n/a n/a Input m... No pull-... n/a
PA4 n/a n/a Input m... No pull-... n/a
PB12 n/a Low Output ... No pull-... Low
PB13 n/a Low Output ... No pull-... Low
PB14 n/a Low Output ... No pull-... Low
PB15 n/a Low Output ... No pull-... Low
Select Pins from table to configure them. Multiple selection is Allowed.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Clock Configurati
Software Pack
Categories
A->Z
System Core
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GPIO Mode and Configuration
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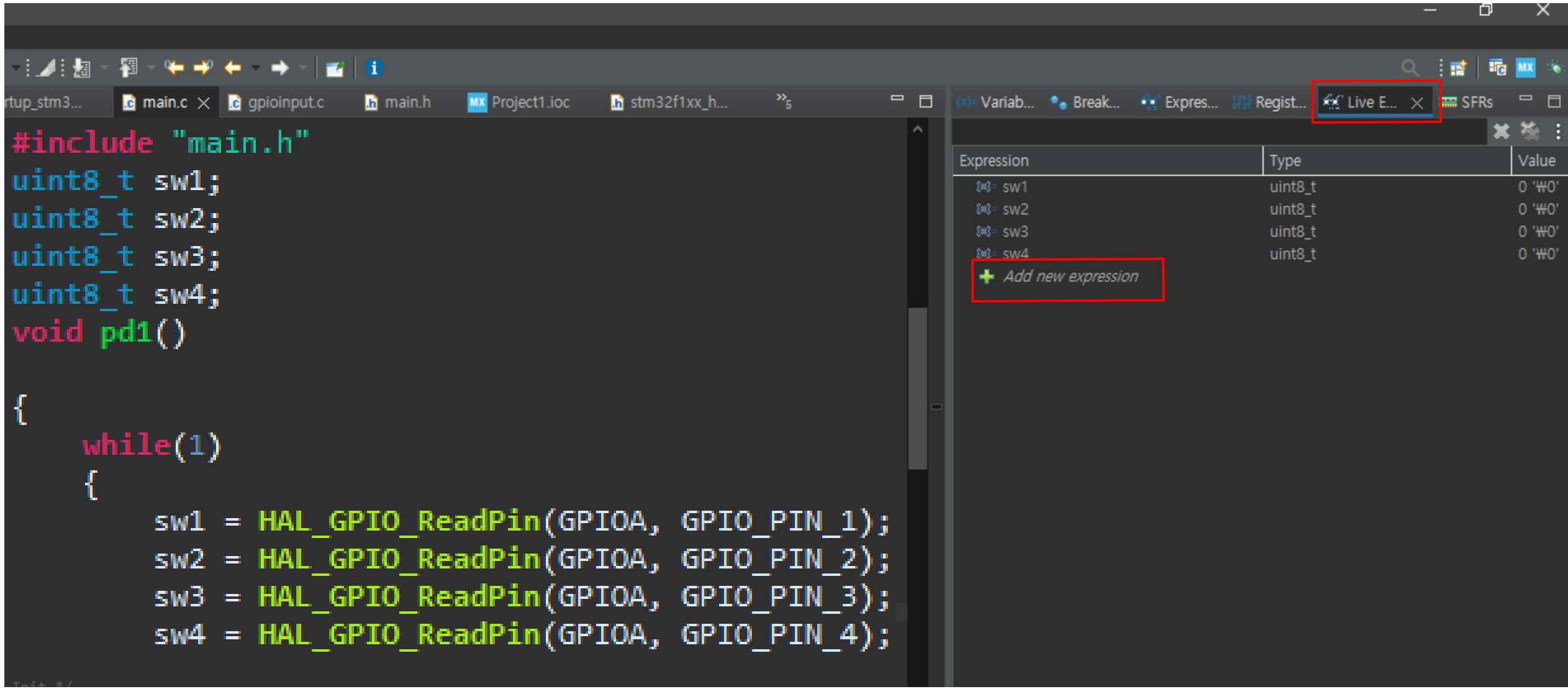
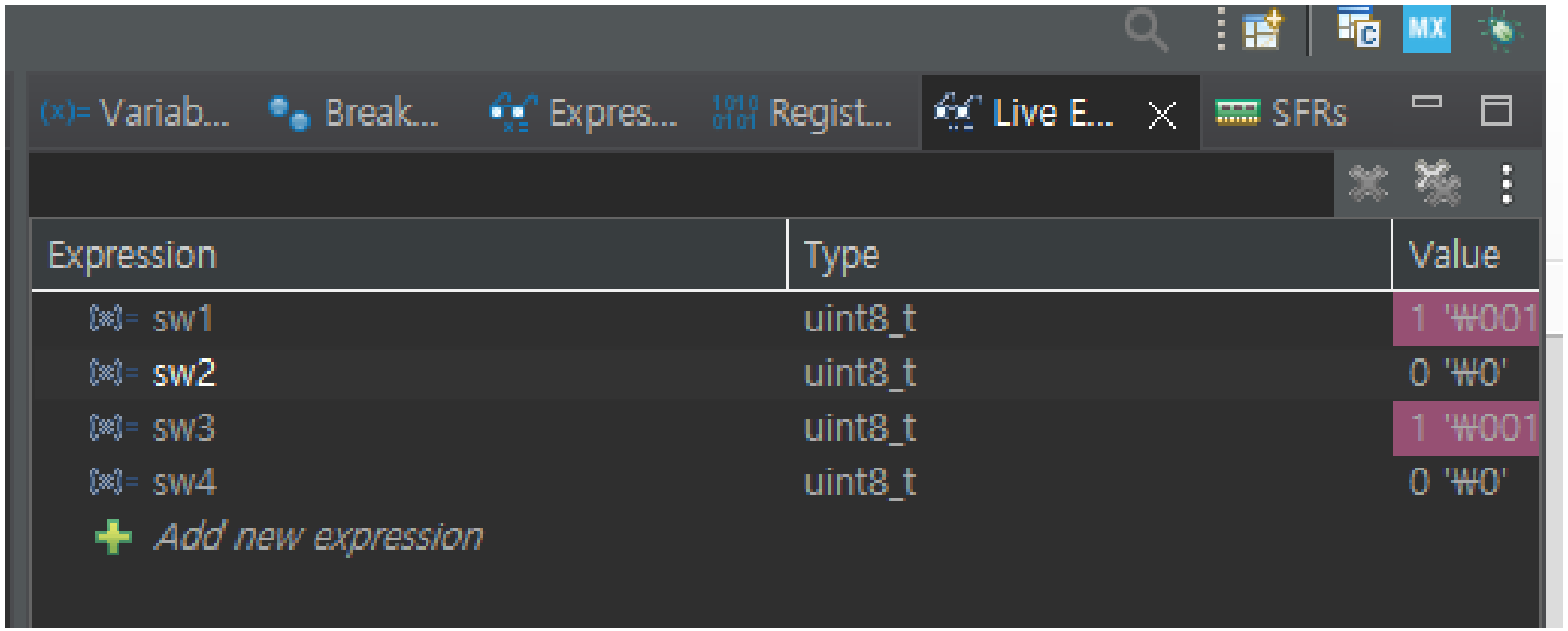
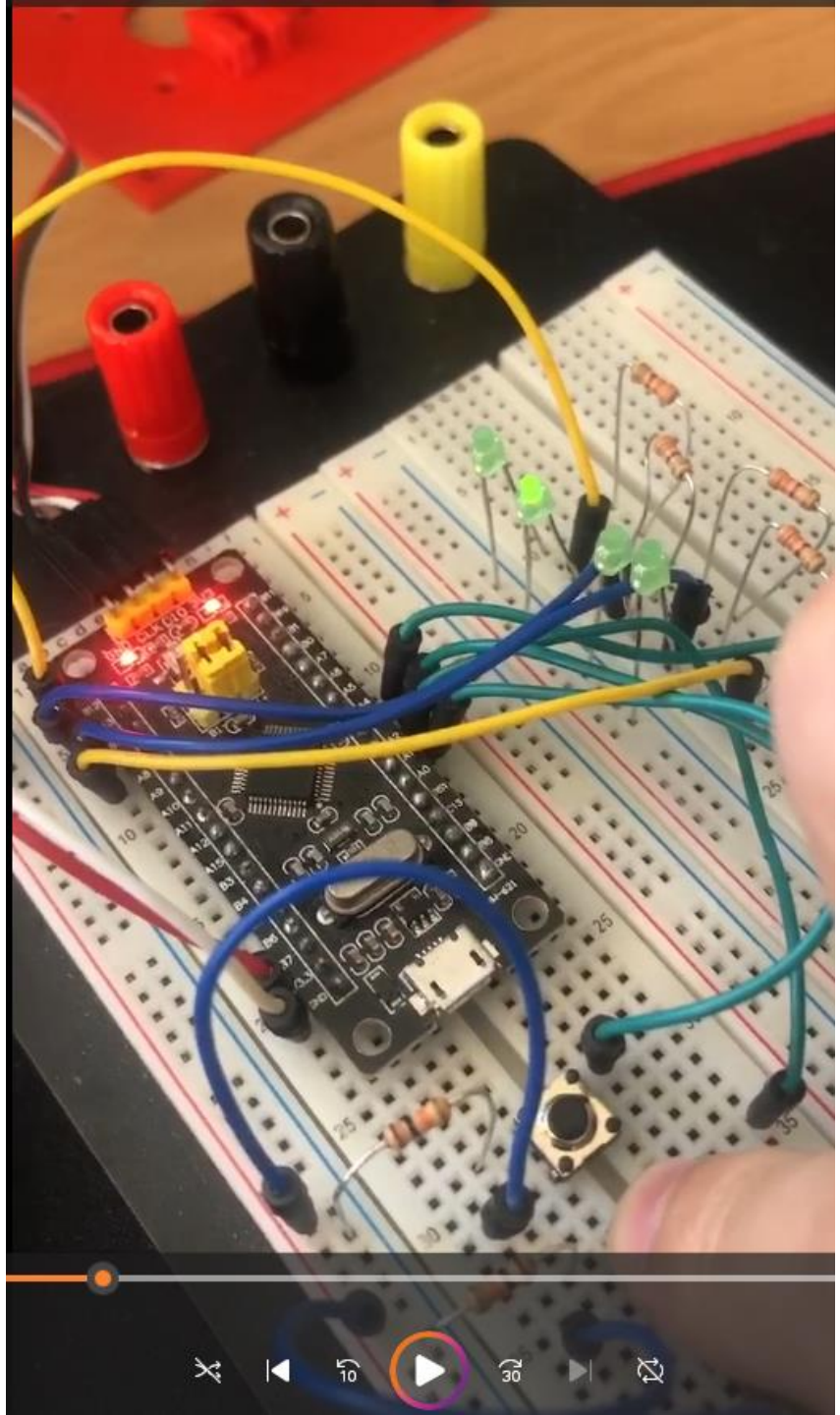
Search Signals
Search (Ctrl+F)
Show only Modified Pins
Pin Name | Signal o... | GPIO ou... | GPIO m... | GPI... | Maximu... | User Label | Modified
PA1 | n/a | n/a | Input m... | No pull-... | n/a
PA2 | n/a | n/a | Input m... | No pull-... | n/a
PA3 | n/a | n/a | Input m... | No pull-... | n/a
PA4 | n/a | n/a | Input m... | No pull-... | n/a
PB12 | n/a | Low | Output ... | No pull-... | Low
PB13 | n/a | Low | Output ... | No pull-... | Low
PB14 | n/a | Low | Output ... | No pull-... | Low
PB15 | n/a | Low | Output ... | No pull-... | Low
PA1 Configuration :
GPIO mode
Input mode
GPIO Pull-up/Pull-down
No pull-up and no pull-down
User Label

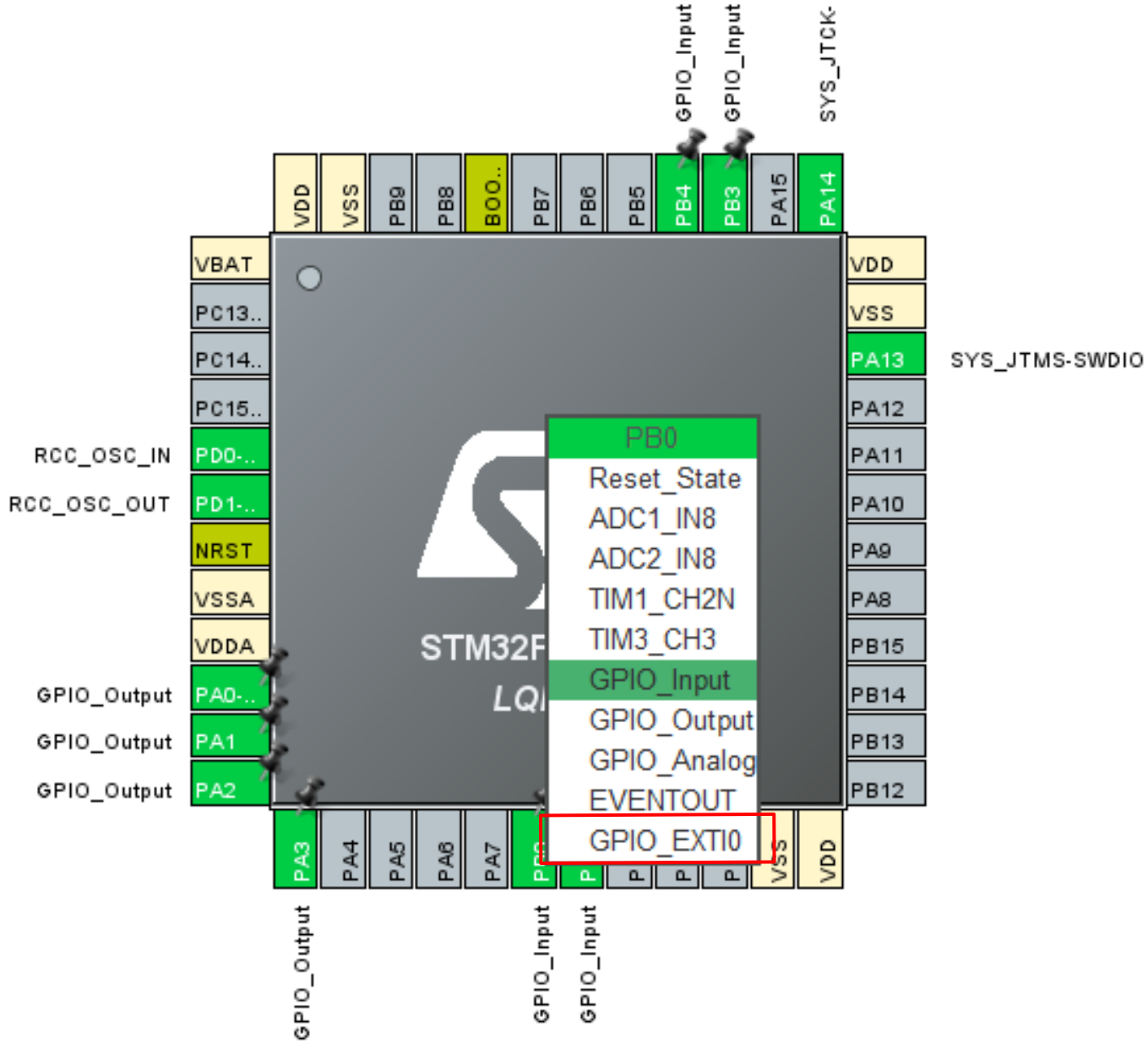
```c
GPIO_PinState HAL_GPIO_ReadPin(GPIO_TypeDef *GPIOx, uint16_t GPIO_Pin)
{
  GPIO_PinState bitstatus;

  /* Check the parameters */
  assert_param(IS_GPIO_PIN(GPIO_Pin));

  if ((GPIOx->IDR & GPIO_Pin) != (uint32_t)GPIO_PIN_RESET)
  {
    bitstatus = GPIO_PIN_SET;
  }
  else
  {
    bitstatus = GPIO_PIN_RESET;
  }
  return bitstatus;
}
```

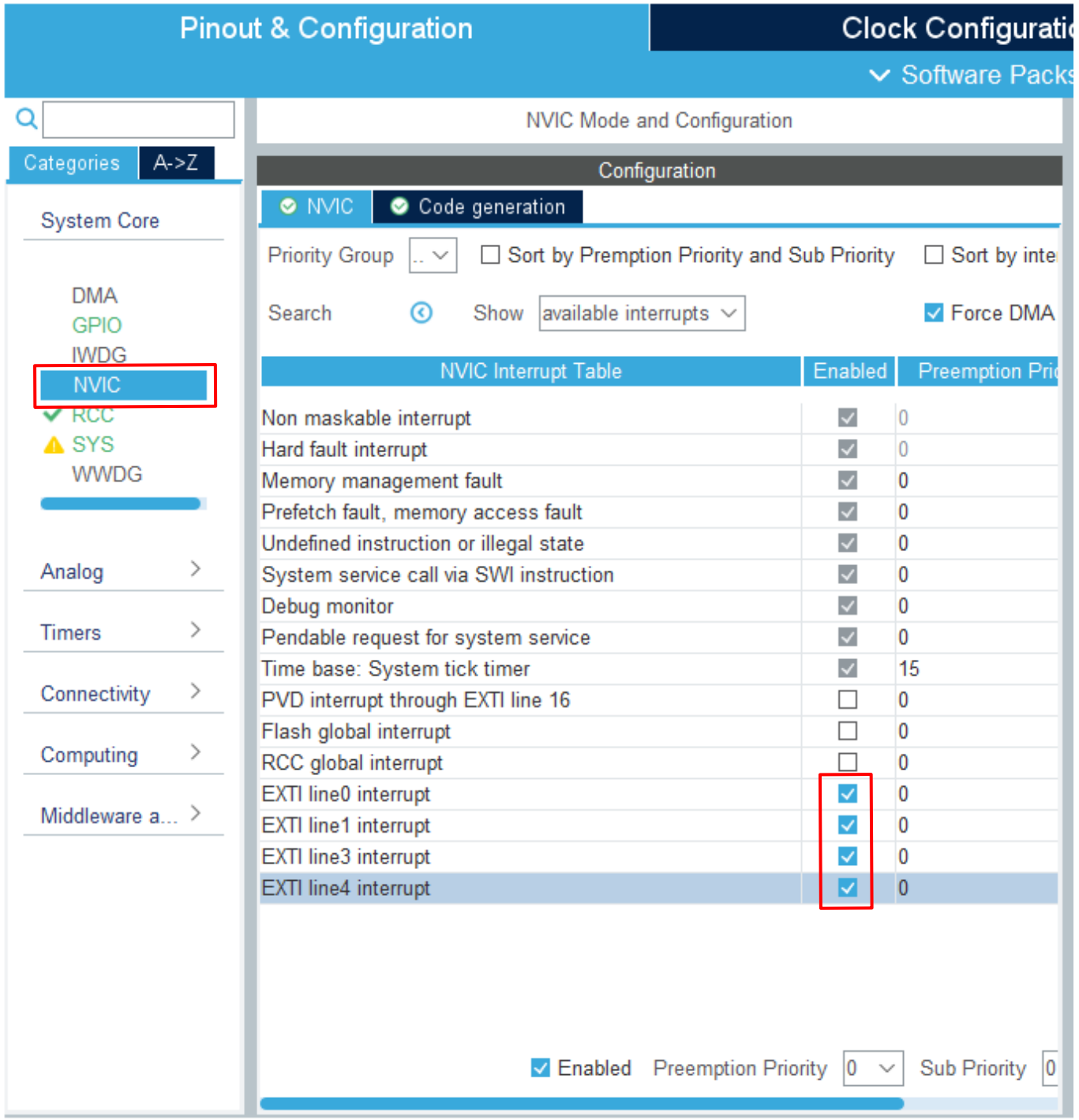

rtup_stm3...
main.c
gpioinput.c
main.h
Project1.ioc
stm32f1xx_h...
Variab...
Break...
Expres...
Regist...
Live E...
SFRs
#include "main.h"
uint8_t sw1;
uint8_t sw2;
uint8_t sw3;
uint8_t sw4;
void pd1()
{
while(1)
{
sw1 = HAL_GPIO_ReadPin(GPIOA, GPIO_PIN_1);
sw2 = HAL_GPIO_ReadPin(GPIOA, GPIO_PIN_2);
sw3 = HAL_GPIO_ReadPin(GPIOA, GPIO_PIN_3);
sw4 = HAL_GPIO_ReadPin(GPIOA, GPIO_PIN_4);
Expression
Type
Value
sw1
uint8_t
0 '₩0'
sw2
uint8_t
0 '₩0'
sw3
uint8_t
0 '₩0'
sw4
uint8_t
0 '₩0'
Add new expression


Variab...
Break...
Expres...
Regist...
Live E...
SFRs
Expression
Type
Value
sw1
uint8_t
1 '\001'
sw2
uint8_t
0 '\0'
sw3
uint8_t
1 '\001'
sw4
uint8_t
0 '\0'
Add new expression

```
 */
#include "main.h"
uint8_t sw1;
uint8_t sw2;
uint8_t sw3;
uint8_t sw4;
void pd1()

{
    while(1)
    {
        sw1 = HAL_GPIO_ReadPin(GPIOA, GPIO_PIN_1);
        sw2 = HAL_GPIO_ReadPin(GPIOA, GPIO_PIN_2);
        sw3 = HAL_GPIO_ReadPin(GPIOA, GPIO_PIN_3);
        sw4 = HAL_GPIO_ReadPin(GPIOA, GPIO_PIN_4);
        if(sw1 == 1)HAL_GPIO_WritePin(GPIOB, GPIO_PIN_12, SET);
        else if(sw1 == 0)HAL_GPIO_WritePin(GPIOB, GPIO_PIN_12, RESET);

        if(sw2 == 1)HAL_GPIO_WritePin(GPIOB, GPIO_PIN_13, SET);
        else if(sw2 == 0)HAL_GPIO_WritePin(GPIOB, GPIO_PIN_13, RESET);

        if(sw3 == 1)HAL_GPIO_WritePin(GPIOB, GPIO_PIN_14, SET);
        else if(sw3 == 0)HAL_GPIO_WritePin(GPIOB, GPIO_PIN_14, RESET);

        if(sw4 == 1)HAL_GPIO_WritePin(GPIOB, GPIO_PIN_15, SET);
        else if(sw4 == 0)HAL_GPIO_WritePin(GPIOB, GPIO_PIN_15, RESET);

    }
}
```




GPIO_Input
GPIO_Input
SYS_JTCK-
VDD
VSS
PB9
PB8
BOO..
PB7
PB6
PB5
PB4
PB3
PA15
PA14
VBAT
PC13..
PC14..
PC15..
RCC_OSC_IN
PD0-..
RCC_OSC_OUT
PD1-..
NRST
VSSA
VDDA
GPIO_Output
PA0-..
GPIO_Output
PA1
GPIO_Output
PA2
VDD
VSS
PA13
SYS_JTMS-SWDIO
PA12
PA11
PA10
PA9
PA8
PB15
PB14
PB13
PB12
PB0
Reset_State
ADC1_IN8
ADC2_IN8
TIM1_CH2N
TIM3_CH3
GPIO_Input
GPIO_Output
GPIO_Analog
EVENTOUT
GPIO_EXTI0
STM32F
LQ
PA3
PA4
PA5
PA6
PA7
VSS
VDD
GPIO_Output
GPIO_Input
GPIO_Input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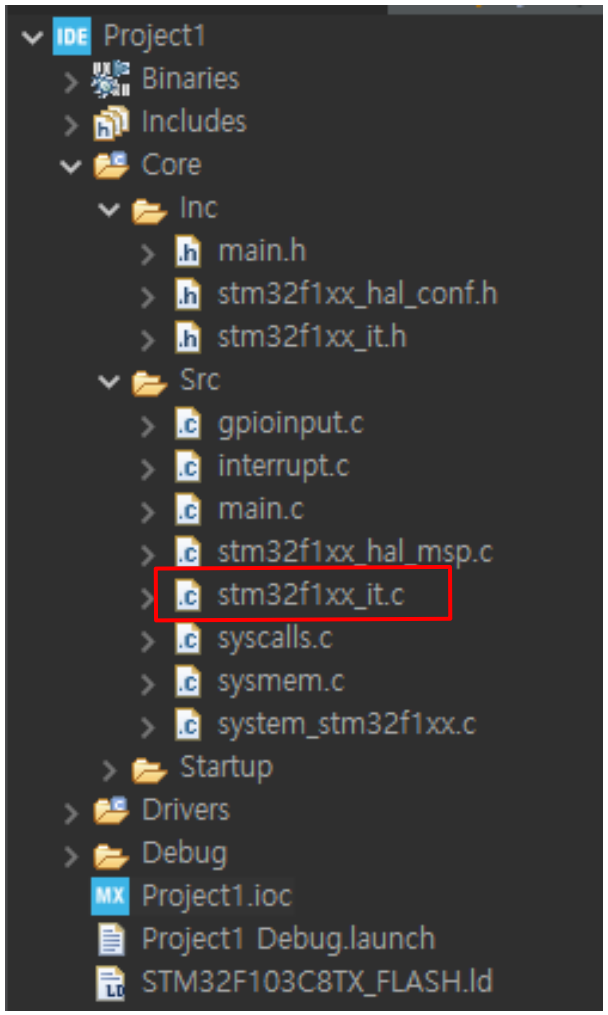
Connectivity
Computing
Middleware a...
NVIC Mode and Configuration
Configuration
NVIC
Code generation
Priority Group
Sort by Premption Priority and Sub Priority
Sort by inte
Search
Show
available interrupts
Force DMA
NVIC Interrupt Table
Enabled
Preemption Pri
Non maskable interrupt 0
Hard fault interrupt 0
Memory management fault 0
Prefetch fault, memory access fault 0
Undefined instruction or illegal state 0
System service call via SWI instruction 0
Debug monitor 0
Pendable request for system service 0
Time base: System tick timer 15
PVD interrupt through EXTI line 16 0
Flash global interrupt 0
RCC global interrupt 0
EXTI line0 interrupt 0
EXTI line1 interrupt 0
EXTI line3 interrupt 0
EXTI line4 interrupt 0
Enabled
Preemption Priority
0
Sub Priority
0




```
204 void EXTI0_IRQHandler(void)
214
215 /**
216   * @brief This function handles EXTI line1 interrupt.
217   */
218 void EXTI1_IRQHandler(void)
228
229 /**
230   * @brief This function handles EXTI line3 interrupt.
231   */
232 void EXTI3_IRQHandler(void)
242
243 /**
244   * @brief This function handles EXTI line4 interrupt.
245   */
246 void EXTI4_IRQHandler(void)
256
```

```c
void EXTI0_IRQHandler(void)
{
  /* USER CODE BEGIN EXTI0_IRQn 0 */

  /* USER CODE END EXTI0_IRQn 0 */
  HAL_GPIO_EXTI_IRQHandler(GPIO_PIN_0);
  /* USER CODE BEGIN EXTI0_IRQn 1 */

  /* USER CODE END EXTI0_IRQn 1 */
}
```

```c
void HAL_GPIO_EXTI_IRQHandler(uint16_t GPIO_Pin)
{
  /* EXTI line interrupt detected */
  if (__HAL_GPIO_EXTI_GET_IT(GPIO_Pin) != 0x00u)
  {
    __HAL_GPIO_EXTI_CLEAR_IT(GPIO_Pin);
    HAL_GPIO_EXTI_Callback(GPIO_Pin);
  }
}

/**
  * @brief  EXTI line detection callbacks.
  * @param  GPIO_Pin: Specifies the pins connected EXTI line
  * @retval None
  */
__weak void HAL_GPIO_EXTI_Callback(uint16_t GPIO_Pin)
{
  /* Prevent unused argument(s) compilation warning */
  UNUSED(GPIO_Pin);
  /* NOTE: This function Should not be modified, when the callback is needed,
           the HAL_GPIO_EXTI_Callback could be implemented in the user file
   */
}
```

```
void HAL_GPIO_EXTI_Callback(uint16_t GPIO_Pin)
{
  if(GPIO_Pin == GPIO_PIN_13){
      flag_sw =1;
  }else if(GPIO_Pin == GPIO_PIN_0){
      flag_sw =2;
  }else if(GPIO_Pin == GPIO_PIN_1){
      flag_sw =3;
  }else if(GPIO_Pin == GPIO_PIN_2){
      flag_sw =4;
  }else if(GPIO_Pin == GPIO_PIN_3){
      flag_sw =5;
  }else if(GPIO_Pin == GPIO_PIN_10){
      flag_sw =6;
  }
```