

# STM32CubeMX Board Selector

Microcontroller Application and Development 2564

Sorayut Glomglome

Nucleo-F767



# Select Board

MX New Project from a Board

MCU/MPU Selector Board Selector Cross Selector

Board Filters

1

Part Number Search

2

Vendor

Type

MCU/MPU Series

Other

Price = 23.0

Oscillator Freq. = 0 (MHz)

Peripheral

- ☒ Accelerometer 0 0
- ☒ Analog I/O 0 0
- ☒ Arduino Form Factor 0 0
- ☒ Audio Line In 0 0
- ☒ Audio Line Out 0 0
- ☒ Battery
- ☒ Button 0 2
- ☒ CAN 0 0
- ☒ Camera
- ☒ Compass
- ☒ Custom Form Factor 0 0
- ☒ Digital I/O 0 244
- ☒ Ethernet
- ☒ Gyroscope

Features

Large Picture Docs & Resources Datasheet Buy 4

Start Project

★ NUCLEO-F767ZI

STM32 F7

STMicronics NUCLEO-F767ZI Board Support and Examples

ACTIVE Active

Product is in mass production

Unit Price (US\$) : 23.0

Mounted device: [STM32F767ZITx](#)

The STM32 Nucleo-144 boards provide an affordable and flexible way for users to try out new concepts and build prototypes by choosing from the various combinations of performance and power consumption features, provided by the STM32 microcontroller. For the compatible boards, the internal or external SMPS significantly reduces power consumption in Run mode. The ST Zio connector, which extends the Arduino™ Uno V3 connectivity, and the ST morpho headers

Boards List: 1 item

*	Overview	Part No	Type	Marketing Status	Unit Price (US\$)	Mounted Device	MCU/MPU Ser...	Battery
★		NUCLEO-F767ZI 3	Nucleo144	Active	23.0	<a href="#">STM32F767ZITx</a>	STM32F7	0

MX Board Project Options: NUCLEO-F767ZI

? Initialize all peripherals with their default Mode ?

1 Yes No

# Disable Ethernet - caused slow init

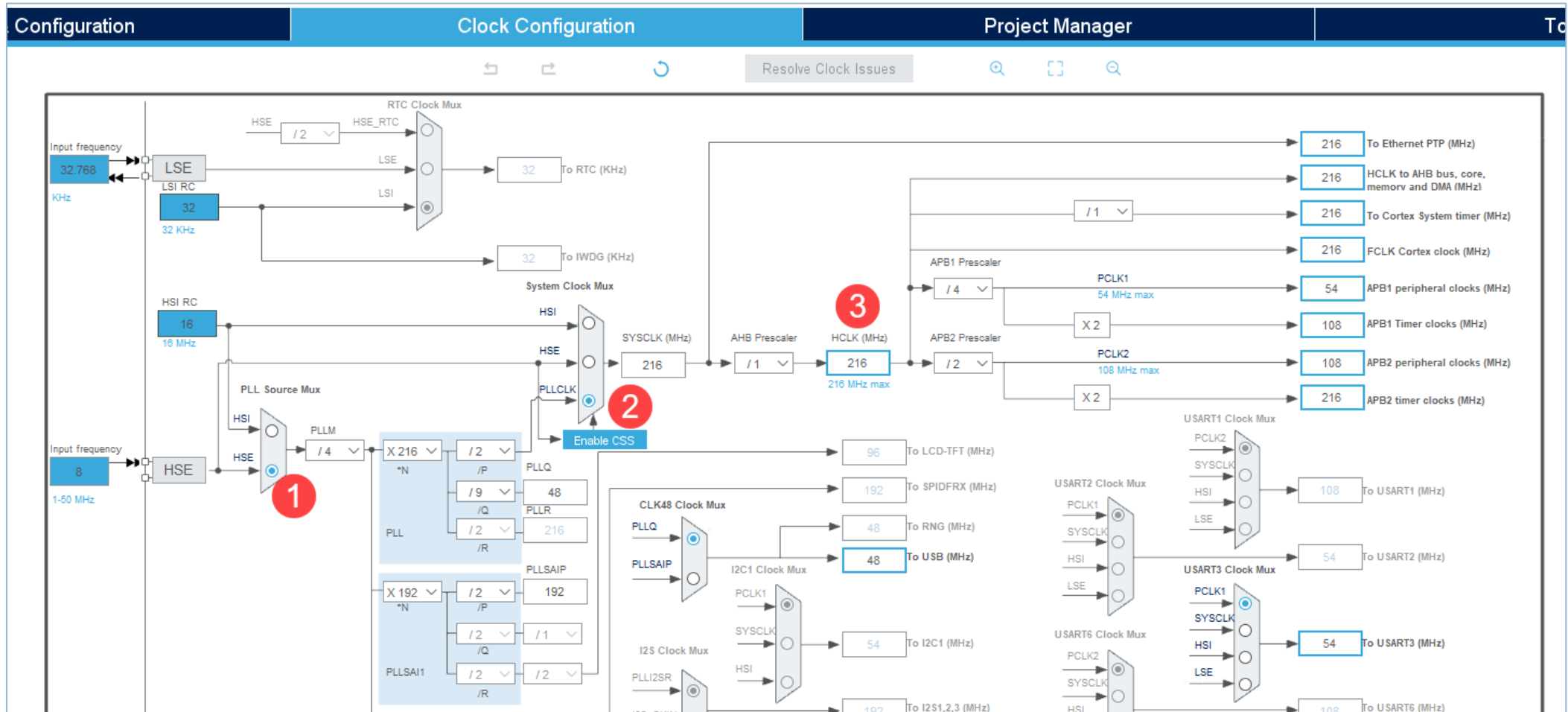
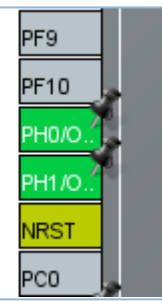
The screenshot displays the STM32CubeMX Pinout & Configuration tab for an STM32F767ZITx LQFP144 microcontroller. The interface is divided into several sections:

- Categories (Left):** A list of peripheral categories. The 'Connectivity' category is expanded, and 'ETH' is highlighted with a red circle labeled '1'.
- ETH Mode and Configuration (Center):** The 'Mode' dropdown menu is set to 'Disable' and is highlighted with a red circle labeled '2'. Below it, the 'Activate Rx Err signal' checkbox is unchecked.
- Pinout View (Right):** A diagram of the microcontroller package showing the pinout. The Ethernet pins (MDIO, MDC, and ETH\_TX) are highlighted in yellow.
- System Core (Far Right):** A list of system components with status indicators: CORTEX\_M7 (checked), DMA (warning), GPIO (warning), I2C (checked), and RCC (checked).

# Enable HSE

MCO [STM32F103CBT6\_PA8]

RCC\_OSC\_OUT



STM32F429-DISC1

# Select Board

STM32 Project

IDE

Target Selection

Select STM32 target or STM32Cube example

1

MCU/MPU Selector

Board Selector

Example Selector

Cross Selector

Board Filters

★

🔍

🔍

🔄

Commercial Part Number

STM32F429I-DISC1

2

Vendor

Type

MCU/MPU Series

Other

Peripheral

Features

Large Picture

Docs & Resources

Datasheet

Buy

★

STM32F4 Series

★

STM32F429I-DISC1

STMicroelectronics STM32F429I Discovery Kit Board Support and Examples

ACTIVE

Active


Product is in mass production

Part Number : 32F429IDISCOVERY

Commercial Part Number : STM32F429I-DISC1

Unit Price (US\$) : 29.9


Mounted Device : [STM32F429ZITx](#)



The 32F429IDISCOVERY Discovery kit leverages the capabilities of the STM32F429 high-performance microcontrollers, to allow users to develop rich applications easily with advanced graphic user interfaces

Boards List: 1 item

Export

	Overview	Commercial Part No	Type	Marketing Status	Unit Price (US\$)	Mounted Device
★		STM32F429I-DISC1	Discovery Kit	Active	29.9	<a href="#">STM32F429ZITx</a>

3

?

< Back

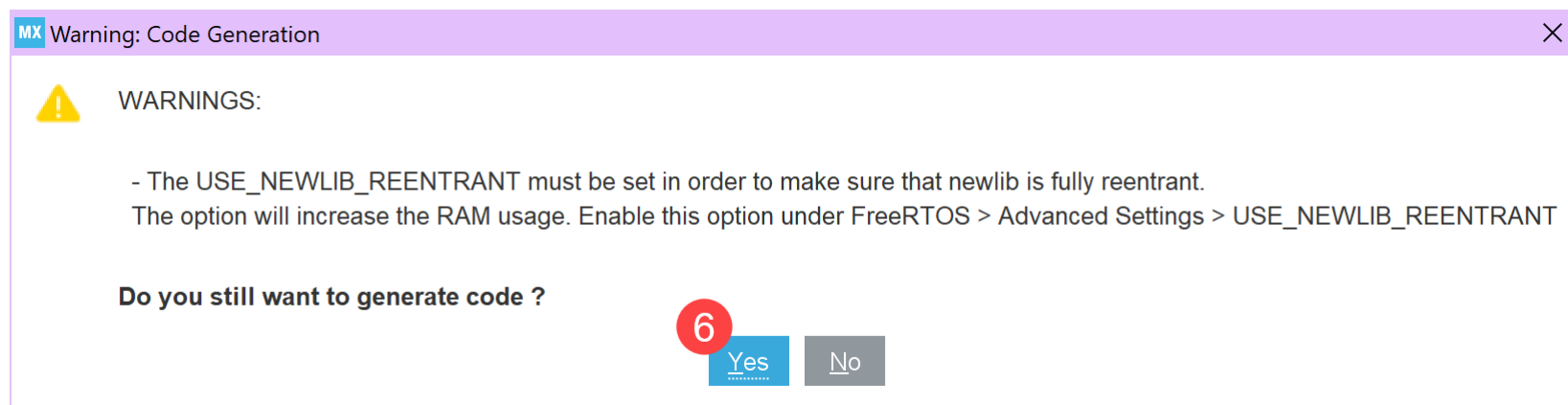
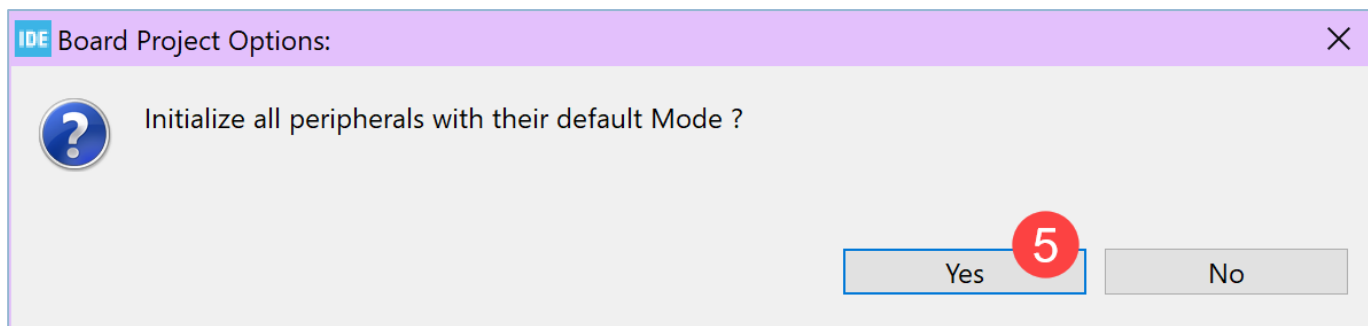
Next >

4

Finish

Cancel

# Select Board





# Disable FreeRTOS

The screenshot shows the STM32CubeMX Pinout & Configuration window. The interface is divided into several sections:

- Categories (Left):** A list of categories including System Core, Analog, Timers, Connectivity, Multimedia, Security, Computing, and Middleware. Under the Middleware category, **FREERTOS** is highlighted with a red circle labeled '1'.
- Mode (Top Center):** A dropdown menu labeled 'Interface' with the value 'Disable' selected, indicated by a red circle labeled '2'.
- Configuration (Bottom Center):** A section for configuring the selected interface.
- Pinout view (Right):** A detailed pinout diagram of the STM32F429ZITx LQFP144 package, showing various pins and their functions.

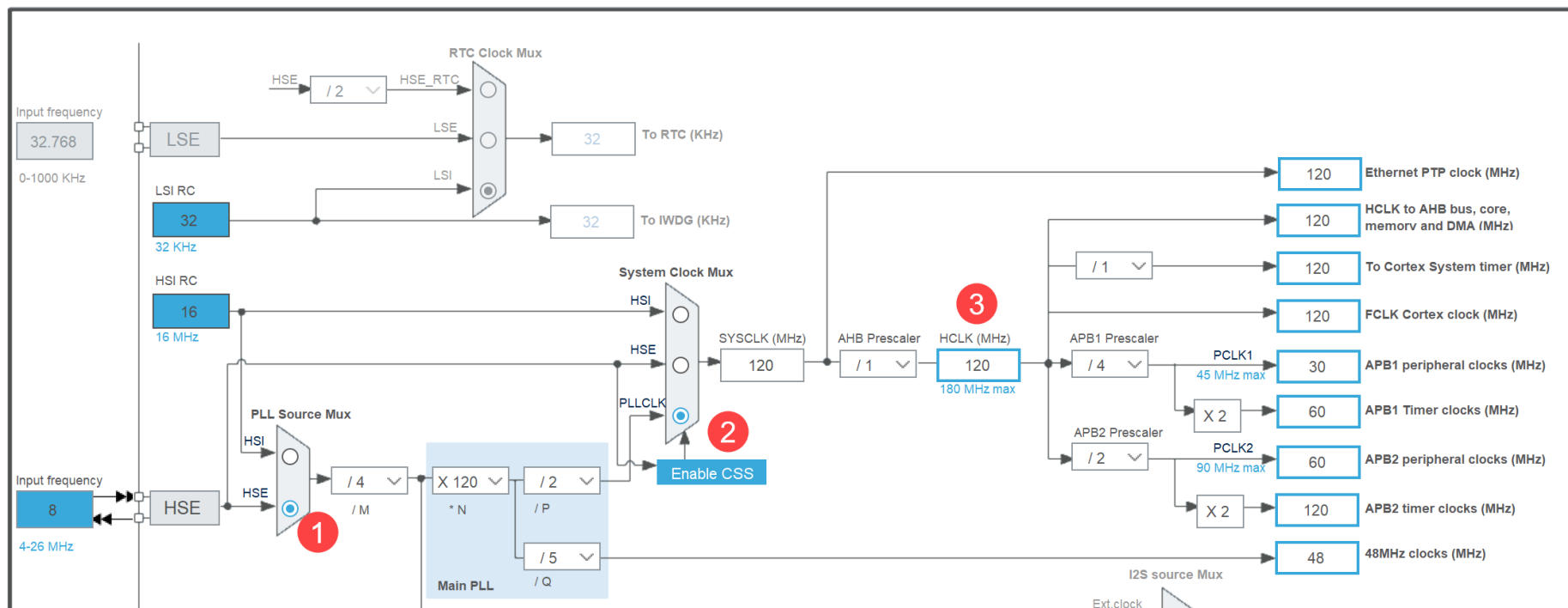
# Disable USB\_RTOS

The screenshot displays the STM32CubeMX Pinout & Configuration window for an STM32F429ZITx LQFP144 microcontroller. The interface is divided into several sections:

- Categories (A-Z):** A list of categories on the left, with **USB\_HOST** highlighted by a red circle with the number 1.
- USB\_HOST Mode and Configuration:** A central panel showing the configuration for the USB\_HOST mode. The **Mode** dropdown is set to **Disable**, indicated by a red circle with the number 2. Other options like **Class For HS IP** and **Class for FS IP** are also set to **Disable**.
- Configuration:** A section at the bottom of the central panel.
- Pinout view:** A detailed pinout diagram of the LQFP144 package, showing the connections for various pins and their functions.

# Enable HSE

SPI5_SCK [L3GD20_SCL/SPC]	PF7
SPI5_MISO [L3GD20_SDO]	PF8
SPI5_MOSI [L3GD20_SDA/SDI/SDO]	PF9
ENABLE [LCD-RGB_ENABLE]	PF10
PH0-OSC_IN	PH0/..
PH1-OSC_OUT	PH1/..
NRST	
SDNWE	PC0



# ADC with TIM - Nucleo-F767

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# Config ADC1

ADC1 Mode and Configuration

Mode

- ☐ IN2
- ☒ IN3
- ☐ IN4
- ☐ IN5

Configuration

Reset Configuration

User Constants ☒ NVIC Settings ☒ DMA Settings ☒ GPIO Settings ☒ Parameter Settings

Configure the below parameters :

Search (Ctrl+F)

ADCs\_Common\_Settings

- Mode: Independent mode

ADC\_Settings

- Clock Prescaler: PCLK2 divided by 4
- Resolution: 12 bits (15 ADC Clock cycles)
- Data Alignment: Right alignment
- Scan Conversion Mode: Disabled
- Continuous Conversion Mode: Disabled
- Discontinuous Conversion Mode: Disabled
- DMA Continuous Requests: Disabled
- End Of Conversion Selection: EOC flag at the end of single channel conversion

ADC\_Regular\_ConversionMode

- Number Of Conversion: 1
- External Trigger Conversion Source: Timer 2 Trigger Out event
- External Trigger Conversion Edge: Trigger detection on the rising edge

Rank

- Channel: Channel 3
- Sampling Time: 28 Cycles

ADC\_Injected\_ConversionMode

- Number Of Conversions: 0

WatchDog

- Enable Analog WatchDog Mode: ☐

# Config TIM2

**Categories** A->Z

- QUADSPI
- ▲ RCC
- RNG
- RTC
- SAI1
- SAI2
- SDMMC1
- ▲ SDMMC2
- SPDIFRX
- SPI1
- SPI2
- SPI3
- SPI4
- SPI5
- SPI6
- ▲ SYS
- TIM1
- ▲ **TIM2** 1
- TIM3
- TIM4
- ▲ TIM5
- TIM6
- TIM7
- TIM8
- TIM9
- TIM10
- TIM11
- ▲ TIM12
- TIM13
- TIM14
- UART4
- UART5
- UART7
- UART8
- ▲ USART1
- ▲ USART2
- ✓ USART3
- ▲ USART6

### TIM2 Mode and Configuration

#### Mode

Slave Mode: Disable

Trigger Source: Disable

Clock Source: **Internal Clock** 2

Channel1: Disable

**Channel2**: Disable

Channel3: Disable

Channel4: Disable

**Combined Channels**: Disable

☐ Use ETR as Clearing Source

☐ XOR activation

☐ One Pulse Mode

#### Configuration

Reset Configuration

✓ Parameter Settings | ✓ User Constants | ✓ NVIC Settings | ✓ DMA Settings

Configure the below parameters :

Search (Ctrl+F)

▼ Counter Settings

- Prescaler (PSC - 16 bits value): 10800-1
- Counter Mode: Up
- Counter Period (AutoReload Register - 32 ...): 10000-1
- Internal Clock Division (CKD): No Division
- auto-reload preload: Disable

▼ Trigger Output (TRGO) Parameters

- Master/Slave Mode (MSM bit): Disable (Trigger input effect not delayed)
- Trigger Event Selection TRGO: Update Event 4

count for 1 S 3

# Config NVIC

**NVIC Mode and Configuration**

**Configuration**

☒ NVIC
 ☒ Code generation

Priority Group: 2 bits for pre-emption priority 2 bits for ...
 ☐ Sort by Preemption Priority and Sub Priority

Search:  Search (Ctrl+F)
 ☐ Show only enabled interrupts

NVIC Interrupt Table	Enabled	Preemption Priority	Sub Priority
Non maskable interrupt	<input checked="" type="checkbox"/>	0	0
Hard fault interrupt	<input checked="" type="checkbox"/>	0	0
Memory management fault	<input checked="" type="checkbox"/>	0	0
Pre-fetch fault, memory access fault	<input checked="" type="checkbox"/>	0	0
Undefined instruction or illegal state	<input checked="" type="checkbox"/>	0	0
System service call via SWI instruction	<input checked="" type="checkbox"/>	0	0
Debug monitor	<input checked="" type="checkbox"/>	0	0
Pendable request for system service	<input checked="" type="checkbox"/>	0	0
Time base: System tick timer	<input checked="" type="checkbox"/>	0	0
PVD interrupt through EXTI line 16	<input type="checkbox"/>	0	0
Flash global interrupt	<input type="checkbox"/>	0	0
RCC global interrupt	<input type="checkbox"/>	0	0
ADC1, ADC2 and ADC3 global interrupts	<input checked="" type="checkbox"/>	2	0
TIM2 global interrupt	<input type="checkbox"/>	1	0
USART3 global interrupt	<input type="checkbox"/>	0	0
EXTI line[15:10] interrupts	<input type="checkbox"/>	0	0
USB On The Go FS global interrupt	<input type="checkbox"/>	0	0
FPU global interrupt	<input type="checkbox"/>	0	0

# Start TIM2 & ADC\_IT in main.c

```
/* USER CODE BEGIN 2 */  
HAL_TIM_Base_Start(&htim2);  
HAL_ADC_Start_IT(&hadc1);  
/* USER CODE END 2 */  
  
/* Infinite loop */  
/* USER CODE BEGIN WHILE */  
while (1)  
{  
    /* USER CODE END WHILE */  
  
    /* USER CODE BEGIN 3 */  
}  
/* USER CODE END 3 */
```



# ADC Callback in main.c

- Read ADC value
- Show result by UART3

```
/* USER CODE BEGIN 4 */  
void HAL_ADC_ConvCpltCallback(ADC_HandleTypeDef* hadc)  
{  
    uint32_t adcVal;  
    char  adcResult[30];  
  
    HAL_GPIO_TogglePin(GPIOB, GPIO_PIN_7);  
  
    adcVal = HAL_ADC_GetValue(hadc);  
  
    sprintf(adcResult, "ADC_Val = 0x%010X\n\r", adcVal);  
    HAL_UART_Transmit(&huart3, (uint8_t *) adcResult, strlen(adcResult), 100);  
}  
/* USER CODE END 4 */
```