

## 1. Description

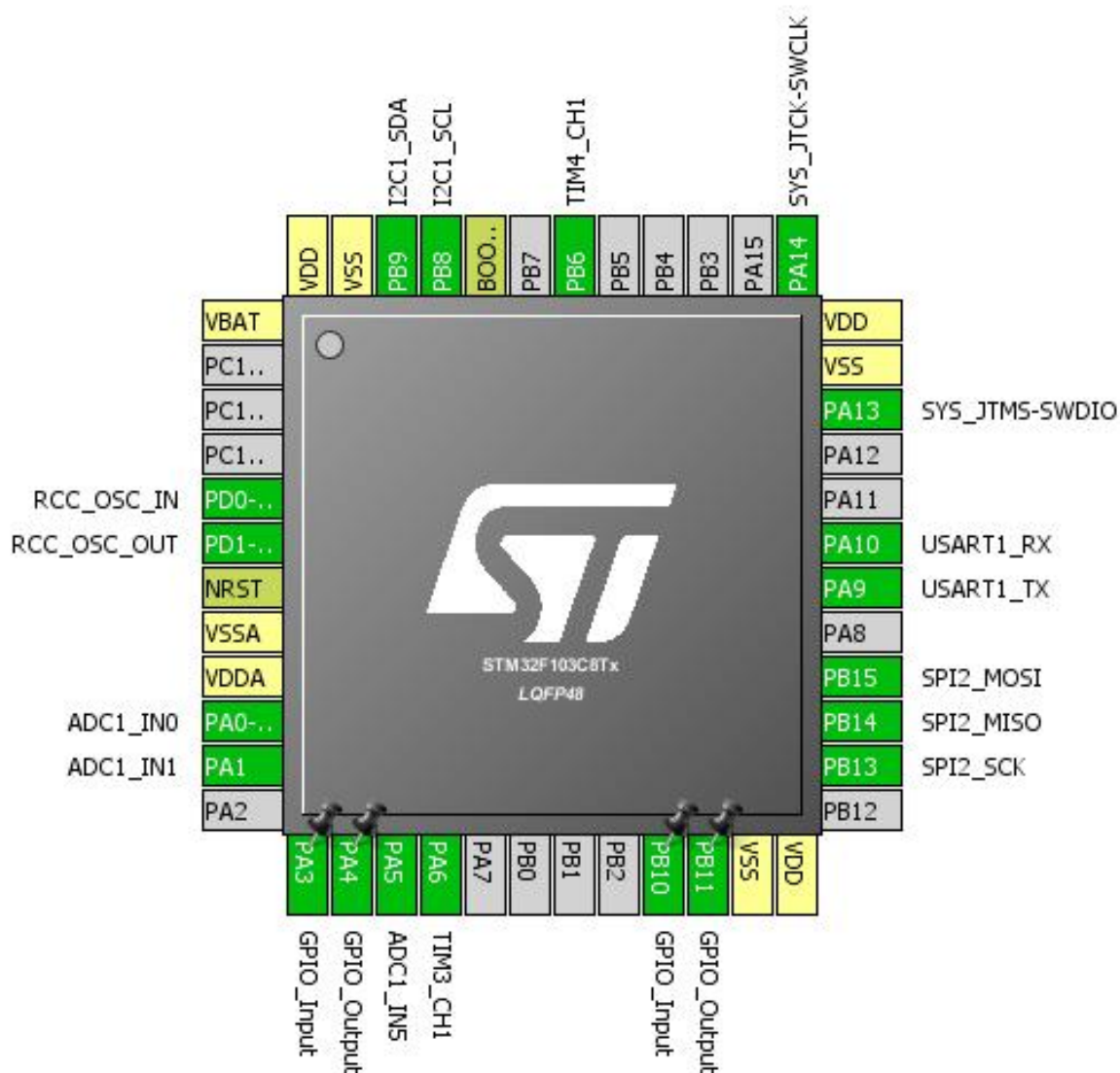
### 1.1. Project

|                 |                    |
|-----------------|--------------------|
| Project Name    | stm32f103c8t6      |
| Board Name      | stm32f103c8t6      |
| Generated with: | STM32CubeMX 4.11.0 |
| Date            | 11/29/2015         |

### 1.2. MCU

|                |               |
|----------------|---------------|
| MCU Series     | STM32F1       |
| MCU Line       | STM32F103     |
| MCU name       | STM32F103C8Tx |
| MCU Package    | LQFP48        |
| MCU Pin number | 48            |

## 2. Pinout Configuration

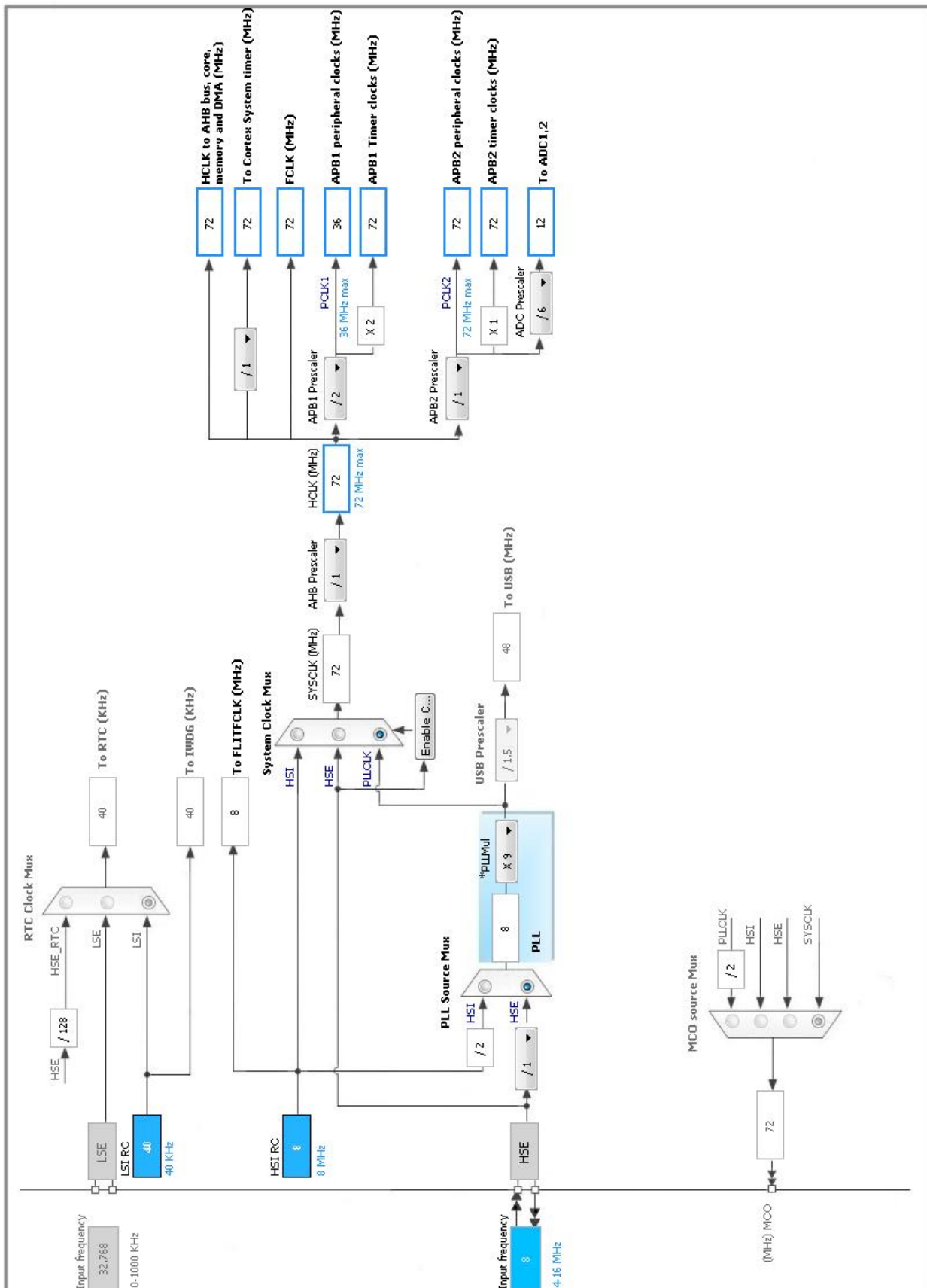


### 3. Pins Configuration

| Pin Number<br>LQFP48 | Pin Name<br>(function after<br>reset) | Pin Type | Alternate<br>Function(s) | Label |
|----------------------|---------------------------------------|----------|--------------------------|-------|
| 1                    | VBAT                                  | Power    |                          |       |
| 5                    | PD0-OSC_IN                            | I/O      | RCC_OSC_IN               |       |
| 6                    | PD1-OSC_OUT                           | I/O      | RCC_OSC_OUT              |       |
| 7                    | NRST                                  | Reset    |                          |       |
| 8                    | VSSA                                  | Power    |                          |       |
| 9                    | VDDA                                  | Power    |                          |       |
| 10                   | PA0-WKUP                              | I/O      | ADC1_IN0                 |       |
| 11                   | PA1                                   | I/O      | ADC1_IN1                 |       |
| 13                   | PA3 *                                 | I/O      | GPIO_Input               |       |
| 14                   | PA4 *                                 | I/O      | GPIO_Output              |       |
| 15                   | PA5                                   | I/O      | ADC1_IN5                 |       |
| 16                   | PA6                                   | I/O      | TIM3_CH1                 |       |
| 21                   | PB10 *                                | I/O      | GPIO_Input               |       |
| 22                   | PB11 *                                | I/O      | GPIO_Output              |       |
| 23                   | VSS                                   | Power    |                          |       |
| 24                   | VDD                                   | Power    |                          |       |
| 26                   | PB13                                  | I/O      | SPI2_SCK                 |       |
| 27                   | PB14                                  | I/O      | SPI2_MISO                |       |
| 28                   | PB15                                  | I/O      | SPI2_MOSI                |       |
| 30                   | PA9                                   | I/O      | USART1_TX                |       |
| 31                   | PA10                                  | I/O      | USART1_RX                |       |
| 34                   | PA13                                  | I/O      | SYS_JTMS-SWDIO           |       |
| 35                   | VSS                                   | Power    |                          |       |
| 36                   | VDD                                   | Power    |                          |       |
| 37                   | PA14                                  | I/O      | SYS_JTCK-SWCLK           |       |
| 42                   | PB6                                   | I/O      | TIM4_CH1                 |       |
| 44                   | BOOT0                                 | Boot     |                          |       |
| 45                   | PB8                                   | I/O      | I2C1_SCL                 |       |
| 46                   | PB9                                   | I/O      | I2C1_SDA                 |       |
| 47                   | VSS                                   | Power    |                          |       |
| 48                   | VDD                                   | Power    |                          |       |

\* The pin is affected with an I/O function

## 4. Clock Tree Configuration



## 5. IPs and Middleware Configuration

### 5.1. ADC1

mode: IN0

mode: IN1

mode: IN5

#### 5.1.1. Parameter Settings:

##### ADCs\_Common\_Settings:

Mode Independent mode

##### ADC\_Settings:

Data Alignment Right alignment

Scan Conversion Mode Disabled

Continuous Conversion Mode Disabled

Discontinuous Conversion Mode Disabled

##### ADC\_Regular\_ConversionMode:

Enable Regular Conversions Enable

Number Of Conversion 1

External Trigger Conversion Edge None

Rank 1

Channel Channel 0

Sampling Time 1.5 Cycles

##### ADC\_Injected\_ConversionMode:

Number Of Conversions 0

##### WatchDog:

Enable Analog WatchDog Mode false

### 5.2. I2C1

I2C: I2C

#### 5.2.1. Parameter Settings:

##### Master Features:

I2C Speed Mode Standard Mode

I2C Clock Speed (Hz) 100000

**Slave Features:**

|                                  |          |
|----------------------------------|----------|
| Clock No Stretch Mode            | Disabled |
| Primary Address Length selection | 7-bit    |
| Dual Address Acknowledged        | Disabled |
| Primary slave address            | 0        |
| General Call address detection   | Disabled |

## 5.3. RCC

### High Speed Clock (HSE): Crystal/Ceramic Resonator

#### 5.3.1. Parameter Settings:

**System Parameters:**

|                   |                    |
|-------------------|--------------------|
| VDD voltage (V)   | 3.3                |
| Prefetch Buffer   | Enabled            |
| Flash Latency(WS) | 2 WS (3 CPU cycle) |

**RCC Parameters:**

|                       |    |
|-----------------------|----|
| HSI Calibration Value | 16 |
|-----------------------|----|

## 5.4. SPI2

### Mode: Full-Duplex Master

#### 5.4.1. Parameter Settings:

**Basic Parameters:**

|              |           |
|--------------|-----------|
| Frame Format | Motorola  |
| Data Size    | 8 Bits    |
| First Bit    | MSB First |

**Clock Parameters:**

|                           |                       |
|---------------------------|-----------------------|
| Prescaler (for Baud Rate) | 2                     |
| Baud Rate                 | <b>18.0 MBits/s *</b> |
| Clock Polarity (CPOL)     | Low                   |
| Clock Phase (CPHA)        | 1 Edge                |

**Advanced Parameters:**

|                 |          |
|-----------------|----------|
| CRC Calculation | Disabled |
| NSS Signal Type | Software |

## 5.5. SYS

Debug: Serial-Wire

## 5.6. TIM1

Clock Source : Internal Clock

### 5.6.1. Parameter Settings:

#### Counter Settings:

|   |             |
|---|-------------|
| Prescaler (PSC - 16 bits value)                       | 0           |
| Counter Mode  | Up          |
| Counter Period (AutoReload Register - 16 bits value ) | 0           |
| Internal Clock Division (CKD)                         | No Division |
| Repetition Counter (RCR - 8 bits value)               | 0           |

#### Trigger Output (TRGO) Parameters:

|                         |   |
|-------------------------|---|
| Master/Slave Mode       | Disable (no sync between this TIM (Master) and its Slaves |
| Trigger Event Selection | Reset (UG bit from TIMx_EGR)                              |

## 5.7. TIM2

Clock Source : Internal Clock

### 5.7.1. Parameter Settings:

#### Counter Settings:

|   |             |
|---|-------------|
| Prescaler (PSC - 16 bits value)                       | 0           |
| Counter Mode  | Up          |
| Counter Period (AutoReload Register - 16 bits value ) | 0           |
| Internal Clock Division (CKD)                         | No Division |

#### Trigger Output (TRGO) Parameters:

|                         |   |
|-------------------------|---|
| Master/Slave Mode       | Disable (no sync between this TIM (Master) and its Slaves |
| Trigger Event Selection | Reset (UG bit from TIMx_EGR)                              |

## 5.8. TIM3

mode: Clock Source

Channel1: Input Capture direct mode

### 5.8.1. Parameter Settings:

#### Counter Settings:

|   |             |
|---|-------------|
| Prescaler (PSC - 16 bits value)                       | 0           |
| Counter Mode  | Up          |
| Counter Period (AutoReload Register - 16 bits value ) | 0           |
| Internal Clock Division (CKD)                         | No Division |

#### Trigger Output (TRGO) Parameters:

|                         |   |
|-------------------------|---|
| Master/Slave Mode       | Disable (no sync between this TIM (Master) and its Slaves |
| Trigger Event Selection | Reset (UG bit from TIMx_EGR)                              |

#### Input Capture Channel 1:

|                             |             |
|-----------------------------|-------------|
| Polarity Selection          | Rising Edge |
| IC Selection                | Direct      |
| Prescaler Division Ratio    | No division |
| Input Filter (4 bits value) | 0           |

## 5.9. TIM4

mode: Clock Source

Channel1: Input Capture direct mode

### 5.9.1. Parameter Settings:

#### Counter Settings:

|   |             |
|---|-------------|
| Prescaler (PSC - 16 bits value)                       | 0           |
| Counter Mode  | Up          |
| Counter Period (AutoReload Register - 16 bits value ) | 0           |
| Internal Clock Division (CKD)                         | No Division |

#### Trigger Output (TRGO) Parameters:

|                         |   |
|-------------------------|---|
| Master/Slave Mode       | Disable (no sync between this TIM (Master) and its Slaves |
| Trigger Event Selection | Reset (UG bit from TIMx_EGR)                              |

#### Input Capture Channel 1:

|                          |             |
|--------------------------|-------------|
| Polarity Selection       | Rising Edge |
| IC Selection             | Direct      |
| Prescaler Division Ratio | No division |



Input Filter (4 bits value)

0

5.10. USART1

Mode: Asynchronous

5.10.1. Parameter Settings:

Basic Parameters:

|             |                           |
|-------------|---------------------------|
| Baud Rate   | 115200                    |
| Word Length | 8 Bits (including Parity) |
| Parity      | None                      |
| Stop Bits   | 1                         |

Advanced Parameters:

|                |                      |
|----------------|----------------------|
| Data Direction | Receive and Transmit |
| Over Sampling  | 16 Samples           |

\* User modified value

## 6. System Configuration

### 6.1. GPIO configuration

| IP     | Pin         | Signal         | GPIO mode                     | GPIO pull/up pull down      | Max Speed | User Label |
|--------|-------------|----------------|-------------------------------|-----------------------------|-----------|------------|
| ADC1   | PA0-WKUP    | ADC1_IN0       | Analog mode                   | n/a                         | n/a       |            |
|        | PA1         | ADC1_IN1       | Analog mode                   | n/a                         | n/a       |            |
|        | PA5         | ADC1_IN5       | Analog mode                   | n/a                         | n/a       |            |
| I2C1   | PB8         | I2C1_SCL       | Alternate Function Open Drain | n/a                         | High *    |            |
|        | PB9         | I2C1_SDA       | Alternate Function Open Drain | n/a                         | High *    |            |
| RCC    | PD0-OSC_IN  | RCC_OSC_IN     | n/a                           | n/a                         | n/a       |            |
|        | PD1-OSC_OUT | RCC_OSC_OUT    | n/a                           | n/a                         | n/a       |            |
| SPI2   | PB13        | SPI2_SCK       | Alternate Function Push Pull  | n/a                         | High *    |            |
|        | PB14        | SPI2_MISO      | Input mode                    | No pull-up and no pull-down | n/a       |            |
|        | PB15        | SPI2_MOSI      | Alternate Function Push Pull  | n/a                         | High *    |            |
| SYS    | PA13        | SYS_JTMS-SWDIO | n/a                           | n/a                         | n/a       |            |
|        | PA14        | SYS_JTCK-SWCLK | n/a                           | n/a                         | n/a       |            |
| TIM3   | PA6         | TIM3_CH1       | Input mode                    | No pull-up and no pull-down | n/a       |            |
| TIM4   | PB6         | TIM4_CH1       | Input mode                    | No pull-up and no pull-down | n/a       |            |
| USART1 | PA9         | USART1_TX      | Alternate Function Push Pull  | n/a                         | High *    |            |
|        | PA10        | USART1_RX      | Input mode                    | No pull-up and no pull-down | n/a       |            |
| GPIO   | PA3         | GPIO_Input     | Input mode                    | No pull-up and no pull-down | n/a       |            |
|        | PA4         | GPIO_Output    | Output Push Pull              | n/a                         | Low       |            |
|        | PB10        | GPIO_Input     | Input mode                    | No pull-up and no pull-down | n/a       |            |
|        | PB11        | GPIO_Output    | Output Push Pull              | n/a                         | Low       |            |

### 6.2. DMA configuration

nothing configured in DMA service

### 6.3. NVIC configuration

| Interrupt Table                         | Enable | Preenmption Priority | SubPriority |
|---|--------|----------------------|-------------|
| System tick timer                       | true   | 0                    | 0           |
| ADC1 and ADC2 global interrupts         | true   | 0                    | 0           |
| Non maskable interrupt                  | unused |                      |             |
| Memory management fault                 | unused |                      |             |
| Prefetch fault, memory access fault     | unused |                      |             |
| Undefined instruction or illegal state  | unused |                      |             |
| Debug monitor                           | unused |                      |             |
| PVD interrupt through EXTI line 16      | unused |                      |             |
| Flash global interrupt                  | unused |                      |             |
| RCC global interrupt                    | unused |                      |             |
| TIM1 break interrupt                    | unused |                      |             |
| TIM1 update interrupt                   | unused |                      |             |
| TIM1 trigger and commutation interrupts | unused |                      |             |
| TIM1 capture compare interrupt          | unused |                      |             |
| TIM2 global interrupt                   | unused |                      |             |
| TIM3 global interrupt                   | unused |                      |             |
| TIM4 global interrupt                   | unused |                      |             |
| I2C1 event interrupt                    | unused |                      |             |
| I2C1 error interrupt                    | unused |                      |             |
| SPI2 global interrupt                   | unused |                      |             |
| USART1 global interrupt                 | unused |                      |             |

\* User modified value

## 7. Power Plugin report

### 7.1. Microcontroller Selection

|           |               |
|-----------|---------------|
| Series    | STM32F1       |
| Line      | STM32F103     |
| MCU       | STM32F103C8Tx |
| Datasheet | 13587_Rev17   |

### 7.2. Parameter Selection

|             |     |
|-------------|-----|
| Temperature | 25  |
| Vdd         | 3.3 |

## 8. Software Project

### 8.1. Project Settings

| Name                              | Value  |
|-----------------------------------|--|
| Project Name                      | stm32f103c8t6                                      |
| Project Folder                    | C:\home\dev\auvir\auvir_embed\cubemx\stm32f103c8t6 |
| Toolchain / IDE                   | SW4STM32   |
| Firmware Package Name and Version | STM32Cube FW_F1 V1.2.0                             |

### 8.2. Code Generation Settings

| Name  | Value                                 |
|---|---------------------------------------|
| STM32Cube Firmware Library Package                              | Copy only the necessary library files |
| Generate peripheral initialization as a pair of '.c/.h' files   | No                                    |
| Backup previously generated files when re-generating            | No                                    |
| Delete previously generated files when not re-generated         | Yes                                   |
| Set all free pins as analog (to optimize the power consumption) | No                                    |