
STM32
CubeMX

# 1. Description

## 1.1. Project

| | |
|---|---|
| Project Name | STMeteo |
| Board Name | custom |
| Generated with: | STM32CubeMX 6.13.0 |
| Date | 02/18/2025 |

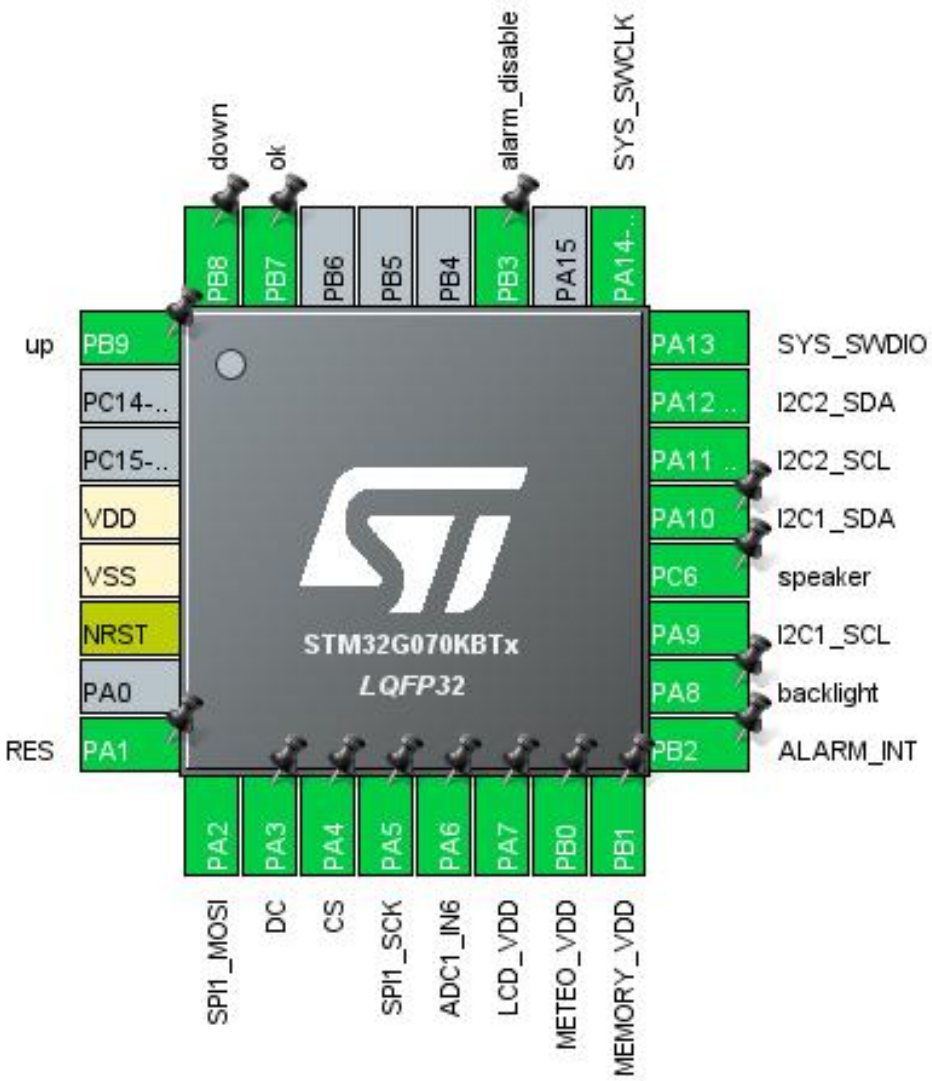
## 1.2. MCU

| | |
|---|---|
| MCU Series | STM32G0 |
| MCU Line | STM32G0x0 Value line |
| MCU name | STM32G070KBTx |
| MCU Package | LQFP32 |
| MCU Pin number | 32 |

## 1.3. Core(s) information

| | |
|---|---|
| Core(s) | ARM Cortex-M0+ |

## 2. Pinout Configuration

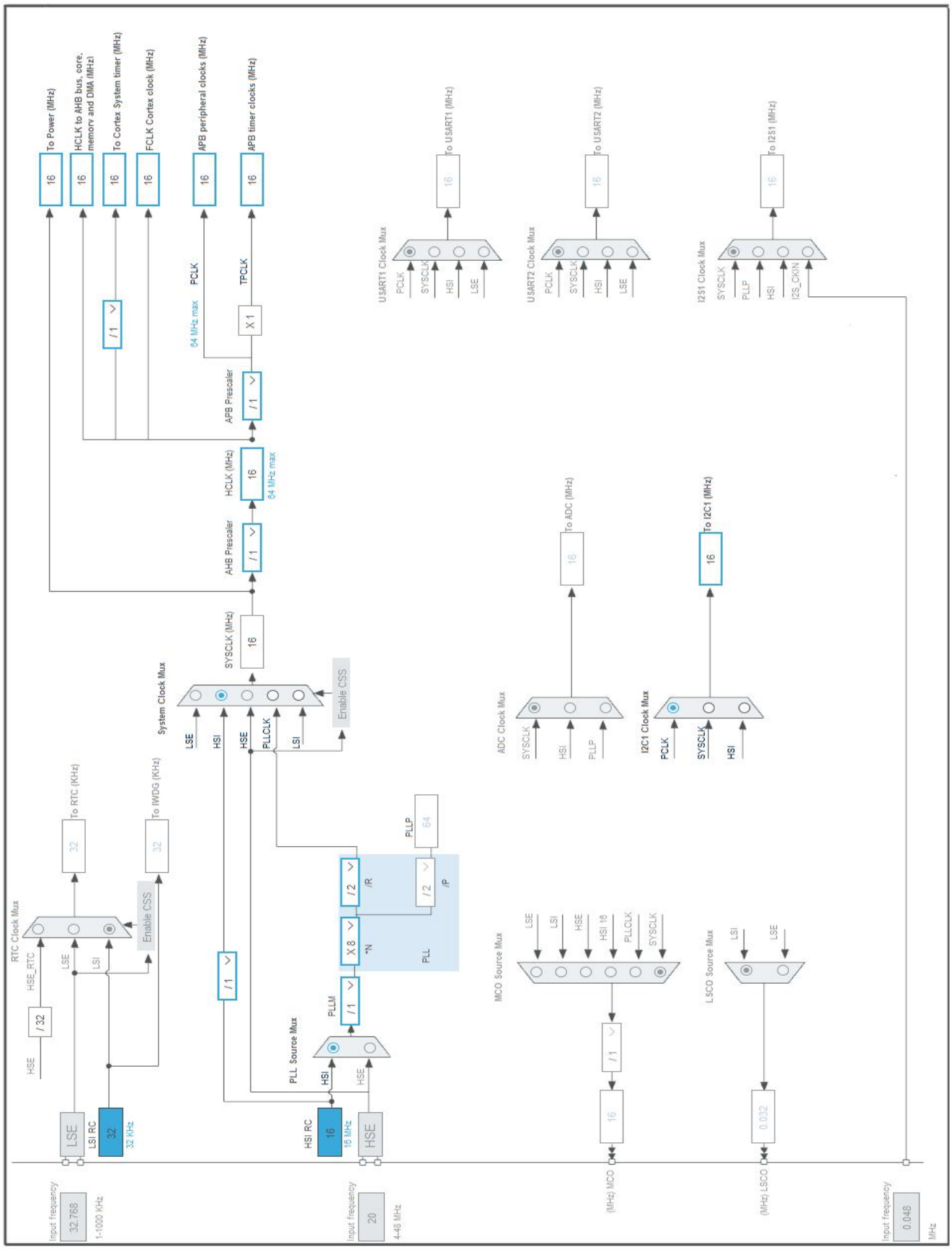


# 3. Pins Configuration

| Pin Number LQFP32 | Pin Name (function after reset) | Pin Type | Alternate Function(s) | Label |
|---|---|---|---|---|
| 1 | PB9 * | I/O | GPIO_Input | up |
| 4 | VDD | Power | | |
| 5 | VSS | Power | | |
| 6 | NRST | Reset | | |
| 8 | PA1 * | I/O | GPIO_Output | RES |
| 9 | PA2 | I/O | SPI1_MOSI | |
| 10 | PA3 * | I/O | GPIO_Output | DC |
| 11 | PA4 * | I/O | GPIO_Output | CS |
| 12 | PA5 | I/O | SPI1_SCK | |
| 13 | PA6 | I/O | ADC1_IN6 | |
| 14 | PA7 * | I/O | GPIO_Output | LCD_VDD |
| 15 | PB0 * | I/O | GPIO_Output | METEO_VDD |
| 16 | PB1 * | I/O | GPIO_Output | MEMORY_VDD |
| 17 | PB2 | I/O | GPIO_EXTI2 | ALARM_INT |
| 18 | PA8 | I/O | TIM1_CH1 | backlight |
| 19 | PA9 | I/O | I2C1_SCL | |
| 20 | PC6 | I/O | TIM3_CH1 | speaker |
| 21 | PA10 | I/O | I2C1_SDA | |
| 22 | PA11 [PA9] | I/O | I2C2_SCL | |
| 23 | PA12 [PA10] | I/O | I2C2_SDA | |
| 24 | PA13 | I/O | SYS_SWDIO | |
| 25 | PA14-BOOT0 | I/O | SYS_SWCLK | |
| 27 | PB3 * | I/O | GPIO_Input | alarm_disable |
| 31 | PB7 | I/O | GPIO_EXTI7 | ok |
| 32 | PB8 * | I/O | GPIO_Input | down |

* The pin is affected with an I/O function

# 4. Clock Tree Configuration



# 1. Power Consumption Calculator report

## 1.1. Microcontroller Selection

| | |
|---|---|
| Series | STM32G0 |
| Line | STM32G0x0 Value line |
| MCU | STM32G070KBTx |
| Datasheet | DS12766_Rev0 |

## 1.2. Parameter Selection

| | |
|---|---|
| Temperature | 25 |
| Vdd | 3.0 |

## 1.3. Battery Selection

| | |
|---|---|
| Battery | Li-SOCL2(AAA700) |
| Capacity | 700.0 mAh |
| Self Discharge | 0.08 %/month |
| Nominal Voltage | 3.6 V |
| Max Cont Current | 10.0 mA |
| Max Pulse Current | 30.0 mA |
| Cells in series | 1 |
| Cells in parallel | 1 |

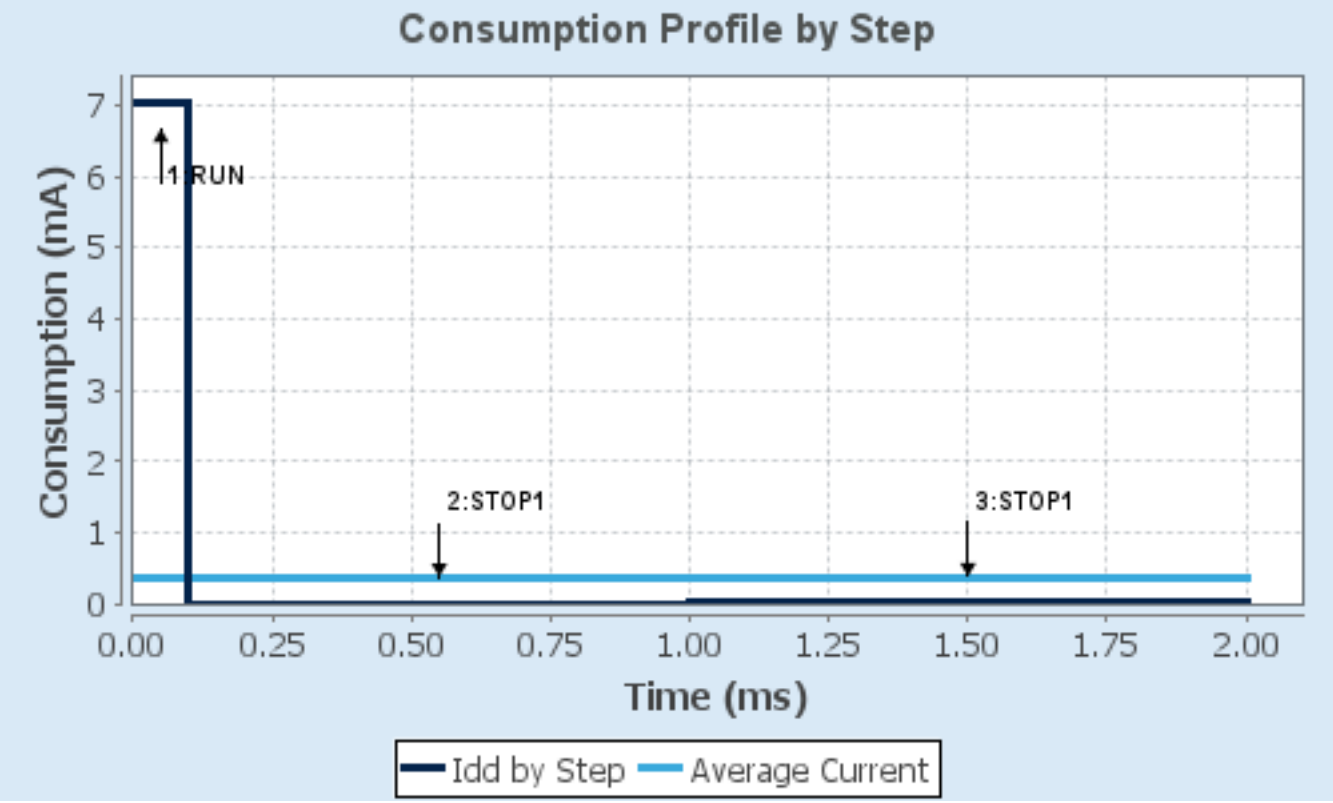
## 1.4. Sequence

| ***Step*** | Step1 | Step2 | Step3 |
|---|---|---|---|
| ***Mode*** | RUN | STOP1 | STOP1 |
| ***Vdd*** | 3.0 | 3.0 | 3.0 |
| ***Voltage Source*** | Battery | Battery | Vbus |
| ***Range*** | Range1-High | NoRange | NoRange |
| ***Fetch Type*** | FLASH | Flash-PowerDown | FLASH |
| ***CPU Frequency*** | 64 MHz | 16 MHz | 16 MHz |
| ***Clock Configuration*** | HSI PLL | HSI | HSI |
| ***Clock Source Frequency*** | 16 MHz | 16 MHz | 16 MHz |
| ***Peripherals*** | | | |
| ***Additional Cons.*** | 0 mA | 0 mA | 0 mA |
| ***Average Current*** | 7.04 mA | 3.74 µA | 8.09 µA |
| ***Duration*** | 0.1 ms | 0.9 ms | 1 ms |
| ***DMIPS*** | 80.0 | 0.0 | 20.0 |
| ***Ta Max*** | 128.39 | 130 | 130 |
| ***Category*** | In DS Table | In DS Table | In DS Table |

## 1.5. Results

| Sequence Time | 2 ms | Average Current | 357.73 µA |
|---|---|---|---|
| Battery Life | 2 months, 21 days, 10 hours | Average DMIPS | 25.454546 DMIPS |

## 1.6. Chart


Consumption Profile by Step
Consumption (mA)
0
1
2
3
4
5
6
7
1:RUN
2:STOP1
3:STOP1
0.00
0.25
0.50
0.75
1.00
1.25
1.50
1.75
2.00
Time (ms)
Idd by Step
Average Current

# 2. Software Project

## 2.1. Project Settings

| Name | Value |
|---|---|
| Project Name | STMeteo |
| Project Folder | D:\STM32Proj\STMeteo_ver_1.1 |
| Toolchain / IDE | STM32CubeIDE |
| Firmware Package Name and Version | STM32Cube FW_G0 V1.6.2 |
| Application Structure | Advanced |
| Generate Under Root | Yes |
| Do not generate the main() | No |
| Minimum Heap Size | 0x200 |
| Minimum Stack Size | 0x400 |

## 2.2. Code Generation Settings

| Name | Value |
|---|---|
| STM32Cube MCU packages and embedded software | Copy only the necessary library files |
| Generate peripheral initialization as a pair of '.c/.h' files | Yes |
| Backup previously generated files when re-generating | No |
| Keep User Code when re-generating | Yes |
| Delete previously generated files when not re-generated | Yes |
| Set all free pins as analog (to optimize the power consumption) | No |
| Enable Full Assert | No |

## 2.3. Advanced Settings - Generated Function Calls

| Rank | Function Name | Peripheral Instance Name |
|---|---|---|
| 1 | SystemClock_Config | RCC |
| 2 | MX_GPIO_Init | GPIO |
| 3 | MX_ADC1_Init | ADC1 |
| 4 | MX_CRC_Init | CRC |
| 5 | MX_I2C1_Init | I2C1 |
| 6 | MX_I2C2_Init | I2C2 |
| 7 | MX_SPI1_Init | SPI1 |
| 8 | MX_TIM1_Init | TIM1 |
| 9 | MX_TIM3_Init | TIM3 |

# 3. Peripherals and Middlewares Configuration

## 3.1. ADC1

### mode: IN6

#### 3.1.1. Parameter Settings:

**ADC_Settings:**

| | |
|---|---|
| Clock Prescaler | Synchronous clock mode divided by 2 |
| Resolution | ADC 12-bit resolution |
| Data Alignment | Right alignment |
| Sequencer | Sequencer set to fully configurable |
| Scan Conversion Mode | Disabled |
| Continuous Conversion Mode | Disabled |
| Discontinuous Conversion Mode | Disabled |
| DMA Continuous Requests | Disabled |
| End Of Conversion Selection | End of single conversion |
| Overrun behaviour | Overrun data preserved |
| Low Power Auto Wait | **Enabled *** |
| Auto Off | **Enabled *** |
| Oversampling Mode | Disabled |

**ADC_Regular_ConversionMode:**

| | |
|---|---|
| SamplingTime Common 1 | **160.5 Cycles *** |
| SamplingTime Common 2 | **160.5 Cycles *** |
| Number Of Conversion | 1 |
| External Trigger Conversion Source | Regular Conversion launched by software |
| External Trigger Conversion Edge | None |
| Trigger Frequency | High frequency |
| Rank | 1 |
| Channel | Channel 6 |
| Sampling Time | Sampling time common 1 |

**Analog Watchdog 1:**

| | |
|---|---|
| Enable Analog WatchDog1 Mode | false |

**Analog Watchdog 2:**

| | |
|---|---|
| Enable Analog WatchDog2 Mode | false |

**Analog Watchdog 3:**

| | |
|---|---|
| Enable Analog WatchDog3 Mode | false |

## 3.2. CRC

**mode: Activated**

3.2.1. Parameter Settings:

**Basic Parameters:**

| | |
|---|---|
| Default Polynomial State | Enable |
| Default Init Value State | Enable |

**Advanced Parameters:**

| | |
|---|---|
| Input Data Inversion Mode | None |
| Output Data Inversion Mode | Disable |
| Input Data Format | Bytes |

## 3.3. I2C1

**I2C: I2C**

3.3.1. Parameter Settings:

**Timing configuration:**

| | |
|---|---|
| Custom Timing | Disabled |
| I2C Speed Mode | Standard Mode |
| I2C Speed Frequency (KHz) | 100 |
| Rise Time (ns) | 100 |
| Fall Time (ns) | 100 |
| Coefficient of Digital Filter | 0 |
| Analog Filter | Enabled |
| Timing | **0x00503D58 *** |

**Slave Features:**

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

## 3.4. I2C2

**mode: I2C**

3.4.1. Parameter Settings:

**Timing configuration:**

| | |
|---|---|
| Custom Timing | Disabled |

| | |
|---|---|
| I2C Speed Mode | Standard Mode |
| I2C Speed Frequency (KHz) | 100 |
| Rise Time (ns) | 100 |
| Fall Time (ns) | 100 |
| Coefficient of Digital Filter | 0 |
| Analog Filter | Enabled |
| Timing | **0x00503D58 *** |

**Slave Features:**

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

## 3.5. RCC

### 3.5.1. Parameter Settings:

**System Parameters:**

| | |
|---|---|
| VDD voltage (V) | 3.3 |
| Instruction Cache | Enabled |
| Prefetch Buffer | Enabled |
| Data Cache | Enabled |
| Flash Latency(WS) | 0 WS (1 CPU cycle) |

**RCC Parameters:**

| | |
|---|---|
| HSI Calibration Value | 64 |
| HSE Startup Timout Value (ms) | 100 |
| LSE Startup Timout Value (ms) | 5000 |

**Power Parameters:**

| | |
|---|---|
| Power Regulator Voltage Scale | Power Regulator Voltage Scale 1 |

**Peripherals Clock Configuration:**

| | |
|---|---|
| Generate the peripherals clock configuration | TRUE |

## 3.6. SPI1

## Mode: Transmit Only Master

### 3.6.1. Parameter Settings:

**Basic Parameters:**

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

**Clock Parameters:**

| | |
|---|---|
| Prescaler (for Baud Rate) | 2 |
| Baud Rate | **8.0 MBits/s *** |
| Clock Polarity (CPOL) | Low |
| Clock Phase (CPHA) | 1 Edge |

**Advanced Parameters:**

| | |
|---|---|
| CRC Calculation | Disabled |
| NSSP Mode | Enabled |
| NSS Signal Type | Software |

## 3.7. SYS

**mode: Debug**

**Timebase Source: SysTick**

**mode: save power of non-active UCPD - deactive Dead Battery pull-up**

## 3.8. TIM1

**Channel1: PWM Generation CH1**

### 3.8.1. Parameter Settings:

**Counter Settings:**

| | |
|---|---|
| Prescaler (PSC - 16 bits value) | 0 |
| Counter Mode | Up |
| Counter Period (AutoReload Register - 16 bits value ) | **1023 *** |
| Internal Clock Division (CKD) | No Division |
| Repetition Counter (RCR - 16 bits value) | 0 |
| auto-reload preload | Disable |

**Trigger Output (TRGO) Parameters:**

| | |
|---|---|
| Master/Slave Mode (MSM bit) | Disable (Trigger input effect not delayed) |
| Trigger Event Selection TRGO | Reset (UG bit from TIMx_EGR) |
| Trigger Event Selection TRGO2 | Reset (UG bit from TIMx_EGR) |

**Break And Dead Time management - BRK Configuration:**

| | |
|---|---|
| BRK State | Disable |
| BRK Polarity | High |
| BRK Filter (4 bits value) | 0 |
| BRK Sources Configuration | |

| | |
|---|---|
| - Digital Input | Disable |

**Break And Dead Time management - BRK2 Configuration:**

| | |
|---|---|
| BRK2 State | Disable |
| BRK2 Polarity | High |
| BRK2 Filter (4 bits value) | 0 |
| BRK2 Sources Configuration | |
| - Digital Input | Disable |

**Break And Dead Time management - Output Configuration:**

| | |
|---|---|
| Automatic Output State | Disable |
| Off State Selection for Run Mode (OSSR) | Disable |
| Off State Selection for Idle Mode (OSSI) | Disable |
| Lock Configuration | Off |

**Clear Input:**

| | |
|---|---|
| Clear Input Source | Disable |

**PWM Generation Channel 1:**

| | |
|---|---|
| Mode | PWM mode 1 |
| Pulse (16 bits value) | 0 |
| Output compare preload | Enable |
| Fast Mode | Disable |
| CH Polarity | High |
| CH Idle State | Reset |

## 3.9. TIM3

## Channel1: PWM Generation CH1

### 3.9.1. Parameter Settings:

**Counter Settings:**

| | |
|---|---|
| Prescaler (PSC - 16 bits value) | **16 *** |
| Counter Mode | Up |
| Counter Period (AutoReload Register - 16 bits value ) | **460 *** |
| 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 | Reset (UG bit from TIMx_EGR) |

**Clear Input:**

| | |
|---|---|
| Clear Input Source | Disable |

**PWM Generation Channel 1:**

| | |
|---|---|
| Mode | PWM mode 1 |

| | |
|---|---|
| Pulse (16 bits value) | 0 |
| Output compare preload | Enable |
| Fast Mode | Disable |
| CH Polarity | High |

*** User modified value**

# 4. System Configuration

## 4.1. GPIO configuration

| IP | Pin | Signal | GPIO mode | GPIO pull/up pull down | Max Speed | User Label |
|---|---|---|---|---|---|---|
| ADC1 | PA6 | ADC1_IN6 | Analog mode | No pull-up and no pull-down | n/a | |
| I2C1 | PA9 | I2C1_SCL | Alternate Function Open Drain | No pull-up and no pull-down | **Very High *** | |
| | PA10 | I2C1_SDA | Alternate Function Open Drain | No pull-up and no pull-down | **Very High *** | |
| I2C2 | PA11 [PA9] | I2C2_SCL | Alternate Function Open Drain | No pull-up and no pull-down | **Very High *** | |
| | PA12 [PA10] | I2C2_SDA | Alternate Function Open Drain | No pull-up and no pull-down | **Very High *** | |
| SPI1 | PA2 | SPI1_MOSI | Alternate Function Push Pull | No pull-up and no pull-down | **Very High *** | |
| | PA5 | SPI1_SCK | Alternate Function Push Pull | No pull-up and no pull-down | **Very High *** | |
| SYS | PA13 | SYS_SWDIO | n/a | n/a | n/a | |
| | PA14-BOOT0 | SYS_SWCLK | n/a | n/a | n/a | |
| TIM1 | PA8 | TIM1_CH1 | Alternate Function Push Pull | No pull-up and no pull-down | **Very High *** | backlight |
| TIM3 | PC6 | TIM3_CH1 | Alternate Function Push Pull | No pull-up and no pull-down | **Very High *** | speaker |
| GPIO | PB9 | GPIO_Input | Input mode | **Pull-up *** | n/a | up |
| | PA1 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | **Very High *** | RES |
| | PA3 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | **Very High *** | DC |
| | PA4 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | **Very High *** | CS |
| | PA7 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | **High *** | LCD_VDD |
| | PB0 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | **High *** | METEO_VDD |
| | PB1 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | **High *** | MEMORY_VDD |
| | PB2 | GPIO_EXTI2 | **External Interrupt Mode with Falling edge trigger detection** | **Pull-up *** | **n/a** | ALARM_INT |

| IP | Pin | Signal | GPIO mode | GPIO pull/up pull down | Max Speed | User Label |
|---|---|---|---|---|---|---|
| | PB3 | GPIO_Input | Input mode | **Pull-up *** | **n/a** | alarm_disable |
| | PB7 | GPIO_EXTI7 | **External Interrupt Mode with Falling edge trigger detection** | **Pull-up *** | **n/a** | ok |
| | PB8 | GPIO_Input | Input mode | **Pull-up *** | **n/a** | down |

### 4.2. DMA configuration

nothing configured in DMA service

## 4.3. NVIC configuration

### 4.3.1. NVIC

| Interrupt Table | Enable | Preenmption Priority | SubPriority |
|---|---|---|---|
| Non maskable interrupt | true | 0 | 0 |
| Hard fault interrupt | true | 0 | 0 |
| System service call via SWI instruction | true | 0 | 0 |
| Pendable request for system service | true | 0 | 0 |
| System tick timer | true | 1 | 0 |
| EXTI line 2 and line 3 interrupts | true | 0 | 0 |
| EXTI line 4 to 15 interrupts | true | 1 | 0 |
| Flash global interrupt | unused | | |
| RCC global interrupt | unused | | |
| ADC1 interrupt | unused | | |
| TIM1 break, update, trigger and commutation interrupts | unused | | |
| TIM1 capture compare interrupt | unused | | |
| TIM3 global interrupt | unused | | |
| I2C1 event global interrupt / I2C1 wake-up interrupt through EXTI line 23 | unused | | |
| I2C2 global interrupt | unused | | |
| SPI1 global interrupt | unused | | |

### 4.3.2. NVIC Code generation

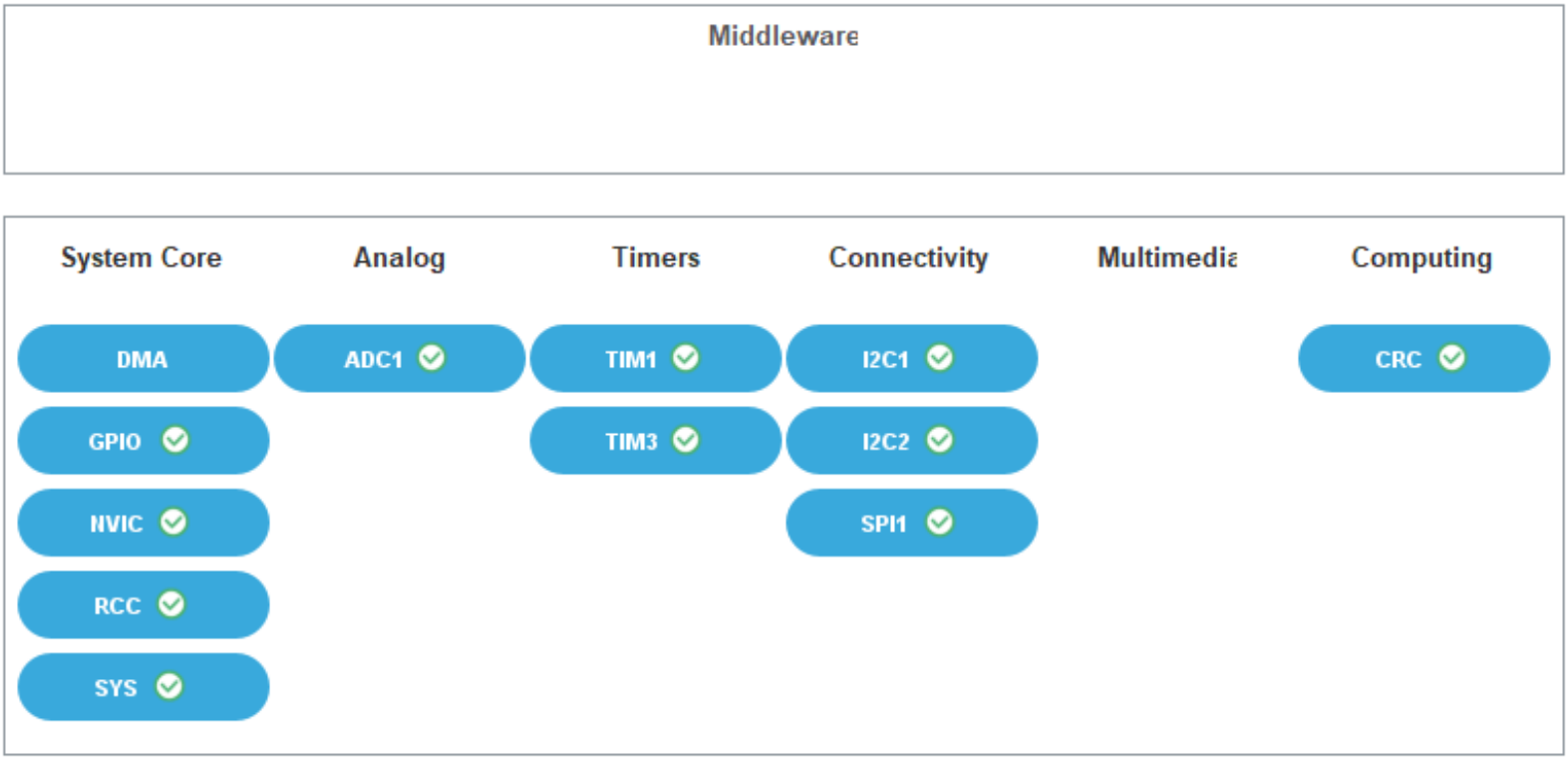
| Enabled interrupt Table | Select for init sequence ordering | Generate IRQ handler | Call HAL handler |
|---|---|---|---|
| Non maskable interrupt | false | true | false |
| Hard fault interrupt | false | true | false |
| System service call via SWI instruction | false | true | false |
| Pendable request for system service | false | true | false |
| System tick timer | false | true | true |
| EXTI line 2 and line 3 interrupts | false | true | true |
| EXTI line 4 to 15 interrupts | false | true | true |

*** User modified value**

# 5. System Views

5.1. Category view

*5.1.1. Current*



# 6. Docs & Resources

| Type | Link |
|---|---|
| IBIS models | https://www.st.com/resource/en/ibis_model/stm32g0_ibis.zip |
| System View Description | https://www.st.com/resource/en/svd/stm32g0-svd.zip |
| Presentations | https://www.st.com/resource/en/product_presentation/stm32-stm8_embedded_software_solutions.pdf |
| Presentations | https://www.st.com/resource/en/product_presentation/stm32_eval-tools_portfolio.pdf |
| Presentations | https://www.st.com/resource/en/product_presentation/stm32_stm8_functional-safety-packages.pdf |
| Presentations | https://www.st.com/resource/en/product_presentation/stm32g0_marketing_pres.pdf |
| Presentations | https://www.st.com/resource/en/product_presentation/stm32-usb-c-pd-solutions-presentation.pdf |
| Presentations | https://www.st.com/resource/en/product_presentation/stm32-stm8_software_development_tools.pdf |
| Presentations | https://www.st.com/resource/en/product_presentation/microcontrollers-stm32-family-overview.pdf |
| Presentations | https://www.st.com/resource/en/product_presentation/microcontrollers-stm32-entry-level-graphics.pdf |
| Brochures | https://www.st.com/resource/en/brochure/products-and-solutions-for-plcs-and-smart-i-os.pdf |
| Flyers | https://www.st.com/resource/en/flyer/flstm32g0.pdf |
| Flyers | https://www.st.com/resource/en/flyer/flstm32nucleo.pdf |
| Flyers | https://www.st.com/resource/en/flyer/flstmcsuite.pdf |
| Flyers | https://www.st.com/resource/en/flyer/flstm32trust.pdf |
| Flyers | https://www.st.com/resource/en/flyer/fldpstpfc11120.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an1709-emc-design-guide-for-stm8-stm32-and-legacy-mcus-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an2606-stm32- |

| | |
|---|---|
| | microcontroller-system-memory-boot-mode-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an2639-soldering-recommendations-and-package-information-for-leadfree-ecopack-mcus-and-mpus-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an3126-audio-and-waveform-generation-using-the-dac-in-stm32-products-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an3155-usart-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an3156-usb-dfu-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an4221-i2c-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an4286-spi-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an4566-extending-the-dac-performance-of-stm32-microcontrollers-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an4655-virtually-increasing-the-number-of-serial-communication-peripherals-in-stm32-applications-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an4750-handling-of-soft-errors-in-stm32-applications-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an4776-generalpurpose-timer-cookbook-for-stm32-microcontrollers-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an4803-highspeed-si-simulations-using-ibis-and-boardlevel-simulations-using-hyperlynx-si-on-stm32-mcus-and-mpus-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an4989-stm32-microcontroller-debug-toolbox-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an5027-interfacing-pdm-digital-microphones-using-stm32-mcus-and-mpus-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an5096-getting-started-with-stm32g0-series-hardware-development-stmicroelectronics.pdf |

| | |
|---|---|
| Application Notes | https://www.st.com/resource/en/application_note/an5110-stm32cube-firmware-examples-for-stm32g0-series-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an5145-migration-of-applications-from-stm32f0-series-to-stm32g0-series--stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an4899-stm32-microcontroller-gpio-hardware-settings-and-lowpower-consumption-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an5612-esd-protection-of-stm32-mcus-and-mpus-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an4991-how-to-wake-up-an-stm32-microcontroller-from-lowpower-mode-with-the-usart-or-the-lpuart-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an4838-introduction-to-memory-protection-unit-management-on-stm32-mcus-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an5225-introduction-to-usb-typec-power-delivery-for-stm32-mcus-and-mpus-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an4777-how-to-optimize-power-consumption-on-stm32-mcus-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an4894-how-to-use-eeprom-emulation-on-stm32-mcus-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an2834-how-to-optimize-the-adc-accuracy-in-the-stm32-mcus-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an5537-how-to-use-adc-oversampling-techniques-to-improve-signaltonoise-ratio-on-stm32-mcus-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an5036-guidelines-for-thermal-management-on-stm32-applications-stmicroelectronics.pdf |
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| Application Notes | https://www.st.com/resource/en/application_note/an5690-how-to-use- |

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|---|---|
| | vrefbuf-peripheral-on-stm32-mcus-and-mpus-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an4230-introduction-to-random-number-generation-validation-using-the-nist-statistical-test-suite-for-stm32-mcus-and-mpus-stmicroelectronics.pdf |
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| Application Notes | https://www.st.com/resource/en/application_note/an4277-how-to-use-pwm-shutdown-for-motor-control-and-digital-power-conversion-on-stm32-mcus-stmicroelectronics.pdf |
| Application Notes | https://www.st.com/resource/en/application_note/an4635-how-to-optimize-lpuart-power-consumption-on-stm32-mcus-stmicroelectronics.pdf |
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| for related Tools & Software | _truestudio-how-to-do-semihosting-in-truestudio-stmicroelectronics.pdf |
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| Application Notes for related Tools & Software | https://www.st.com/resource/en/application_note/an5361-getting-started-with-projects-based-on-dualcore-stm32h7-microcontrollers-in-stm32cubeide-stmicroelectronics.pdf |
| Application Notes for related Tools | https://www.st.com/resource/en/application_note/an5394-getting-started-with-projects-based-on-the-stm32l5-series-in-stm32cubeide- |

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|---|---|
| & Software | stmicroelectronics.pdf |
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| Application Notes for related Tools & Software | https://www.st.com/resource/en/application_note/an4865-lowpower-timer-lptim-applicative-use-cases-on-stm32-mcus-and-mpus-stmicroelectronics.pdf |
| Application Notes for related Tools & Software | https://www.st.com/resource/en/application_note/an5698-adapting-the-xcubestl-functional-safety-package-for-stm32-iec-61508-compliant-to-other-safety-standards-stmicroelectronics.pdf |
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| Technical Notes & Articles | https://www.st.com/resource/en/technical_note/tn1205-tape-and-reel-shipping-media-for-stm8-and-stm32-microcontrollers-in-fpn-packages-stmicroelectronics.pdf |
| Technical Notes & Articles | https://www.st.com/resource/en/technical_note/tn1206-tape-and-reel-shipping-media-for-stm8-and-stm32-microcontrollers-in-qfp-packages-stmicroelectronics.pdf |
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