# 1. Description

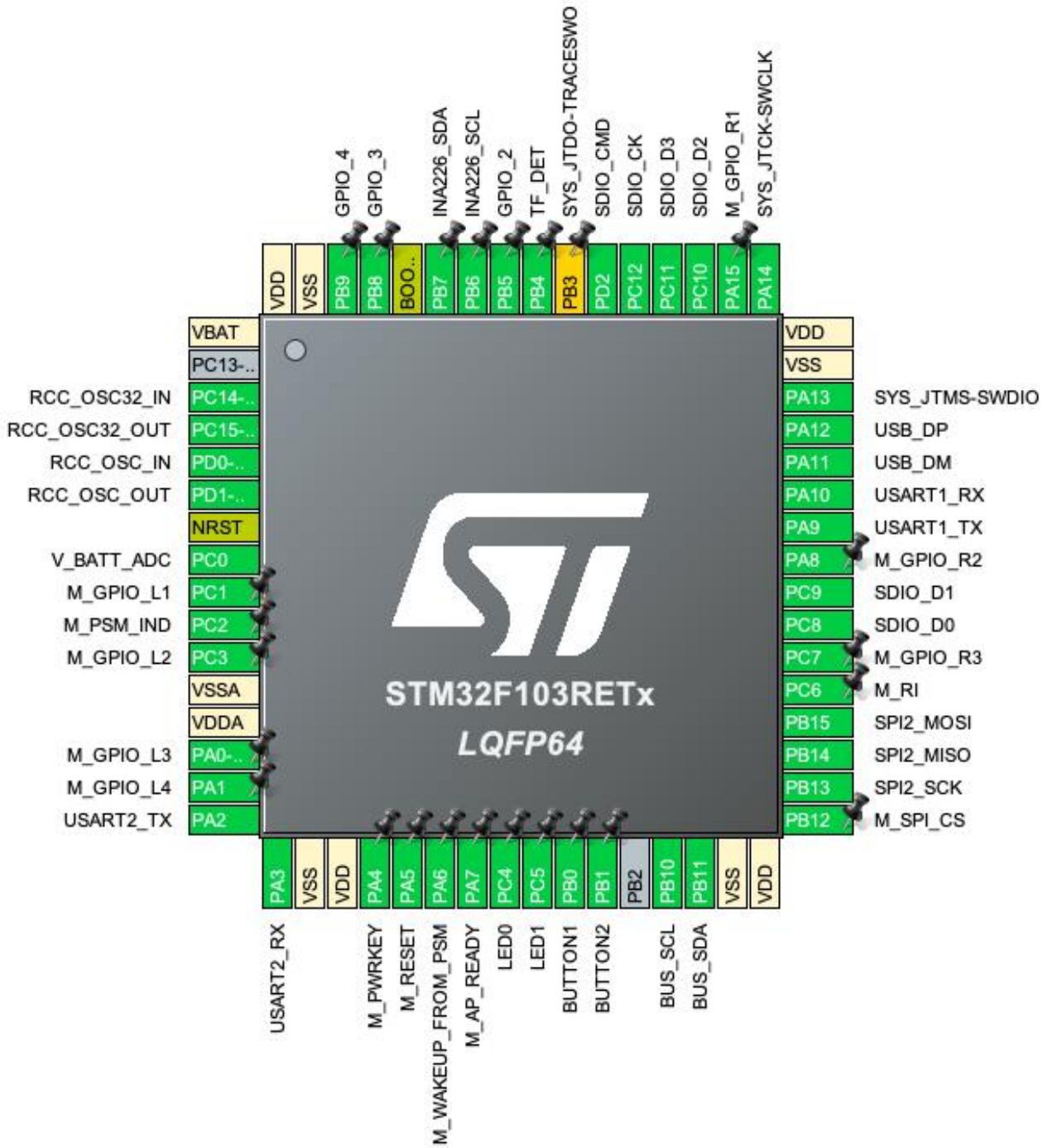
## 1.1. Project

| | |
|---|---|
| Project Name | field-test-control |
| Board Name | custom |
| Generated with: | STM32CubeMX 5.4.0 |
| Date | 09/08/2020 |

## 1.2. MCU

| | |
|---|---|
| MCU Series | STM32F1 |
| MCU Line | STM32F103 |
| MCU name | STM32F103RETx |
| MCU Package | LQFP64 |
| MCU Pin number | 64 |

## 2. Pinout Configuration



# 3. Pins Configuration

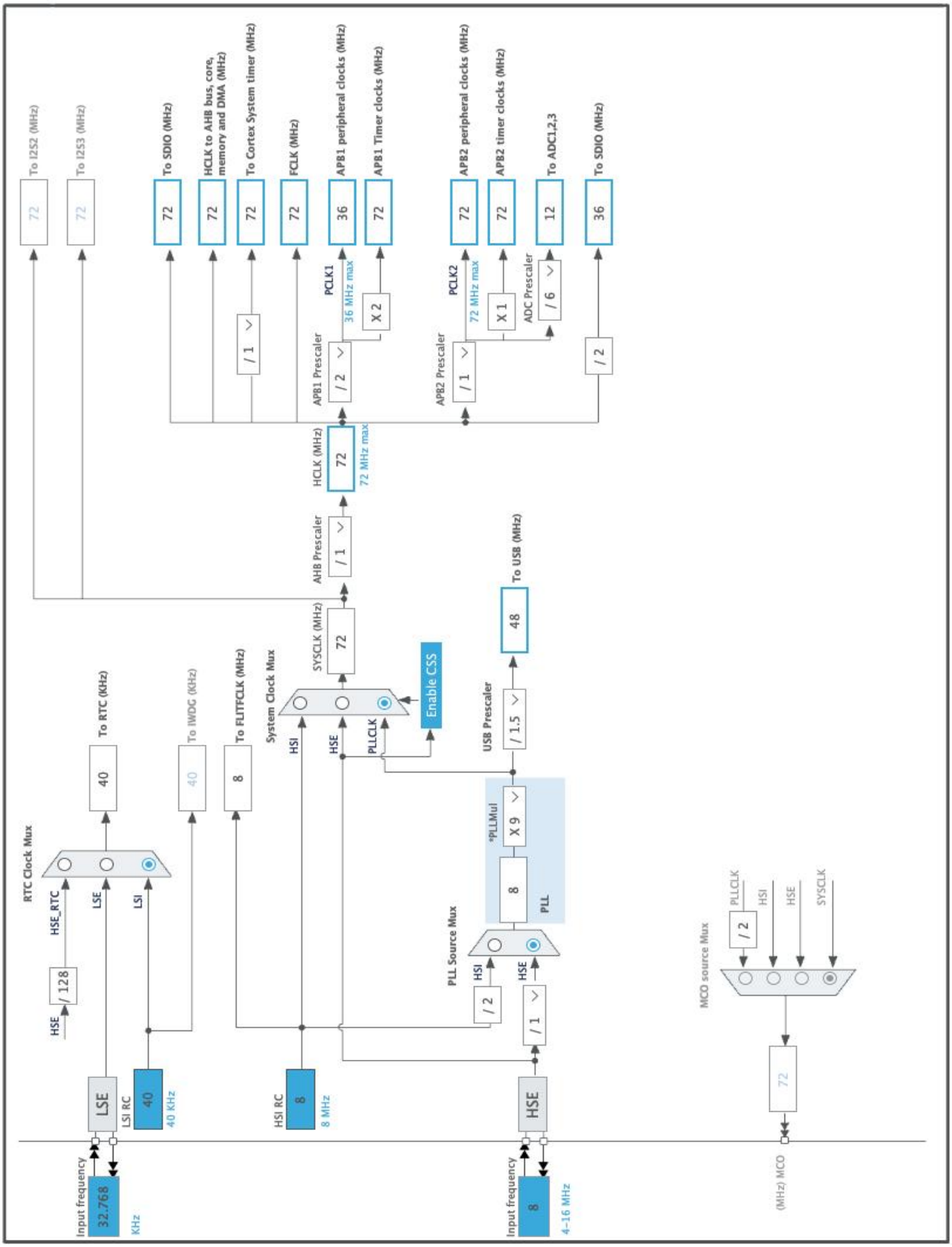
| Pin Number LQFP64 | Pin Name (function after reset) | Pin Type | Alternate Function(s) | Label |
|---|---|---|---|---|
| 1 | VBAT | Power | | |
| 3 | PC14-OSC32_IN | I/O | RCC_OSC32_IN | |
| 4 | PC15-OSC32_OUT | I/O | RCC_OSC32_OUT | |
| 5 | PD0-OSC_IN | I/O | RCC_OSC_IN | |
| 6 | PD1-OSC_OUT | I/O | RCC_OSC_OUT | |
| 7 | NRST | Reset | | |
| 8 | PC0 | I/O | ADC1_IN10 | V_BATT_ADC |
| 9 | PC1 * | I/O | GPIO_Output | M_GPIO_L1 |
| 10 | PC2 * | I/O | GPIO_Input | M_PSM_IND |
| 11 | PC3 * | I/O | GPIO_Output | M_GPIO_L2 |
| 12 | VSSA | Power | | |
| 13 | VDDA | Power | | |
| 14 | PA0-WKUP * | I/O | GPIO_Output | M_GPIO_L3 |
| 15 | PA1 * | I/O | GPIO_Output | M_GPIO_L4 |
| 16 | PA2 | I/O | USART2_TX | |
| 17 | PA3 | I/O | USART2_RX | |
| 18 | VSS | Power | | |
| 19 | VDD | Power | | |
| 20 | PA4 * | I/O | GPIO_Output | M_PWRKEY |
| 21 | PA5 * | I/O | GPIO_Output | M_RESET |
| 22 | PA6 * | I/O | GPIO_Output | M_WAKEUP_FROM_PSM |
| 23 | PA7 * | I/O | GPIO_Output | M_AP_READY |
| 24 | PC4 * | I/O | GPIO_Output | LED0 |
| 25 | PC5 * | I/O | GPIO_Output | LED1 |
| 26 | PB0 | I/O | GPIO_EXTI0 | BUTTON1 |
| 27 | PB1 | I/O | GPIO_EXTI1 | BUTTON2 |
| 29 | PB10 | I/O | I2C2_SCL | BUS_SCL |
| 30 | PB11 | I/O | I2C2_SDA | BUS_SDA |
| 31 | VSS | Power | | |
| 32 | VDD | Power | | |
| 33 | PB12 * | I/O | GPIO_Output | M_SPI_CS |
| 34 | PB13 | I/O | SPI2_SCK | |
| 35 | PB14 | I/O | SPI2_MISO | |
| 36 | PB15 | I/O | SPI2_MOSI | |
| 37 | PC6 * | I/O | GPIO_Input | M_RI |
| 38 | PC7 * | I/O | GPIO_Output | M_GPIO_R3 |

| Pin Number LQFP64 | Pin Name (function after reset) | Pin Type | Alternate Function(s) | Label |
|---|---|---|---|---|
| 39 | PC8 | I/O | SDIO_D0 | |
| 40 | PC9 | I/O | SDIO_D1 | |
| 41 | PA8 * | I/O | GPIO_Output | M_GPIO_R2 |
| 42 | PA9 | I/O | USART1_TX | |
| 43 | PA10 | I/O | USART1_RX | |
| 44 | PA11 | I/O | USB_DM | |
| 45 | PA12 | I/O | USB_DP | |
| 46 | PA13 | I/O | SYS_JTMS-SWDIO | |
| 47 | VSS | Power | | |
| 48 | VDD | Power | | |
| 49 | PA14 | I/O | SYS_JTCK-SWCLK | |
| 50 | PA15 * | I/O | GPIO_Output | M_GPIO_R1 |
| 51 | PC10 | I/O | SDIO_D2 | |
| 52 | PC11 | I/O | SDIO_D3 | |
| 53 | PC12 | I/O | SDIO_CK | |
| 54 | PD2 | I/O | SDIO_CMD | |
| 55 | PB3 ** | I/O | SYS_JTDO-TRACESWO | |
| 56 | PB4 * | I/O | GPIO_Input | TF_DET |
| 57 | PB5 * | I/O | GPIO_Output | GPIO_2 |
| 58 | PB6 | I/O | I2C1_SCL | INA226_SCL |
| 59 | PB7 | I/O | I2C1_SDA | INA226_SDA |
| 60 | BOOT0 | Boot | | |
| 61 | PB8 * | I/O | GPIO_Output | GPIO_3 |
| 62 | PB9 * | I/O | GPIO_Output | GPIO_4 |
| 63 | VSS | Power | | |
| 64 | VDD | Power | | |

* The pin is affected with an I/O function

** The pin is affected with a peripheral function but no peripheral mode is activated

# 4. Clock Tree Configuration



# 5. Software Project

## 5.1. Project Settings

| Name | Value |
|---|---|
| Project Name | field-test-control |
| Project Folder | /Users/dlyang/Dropbox/field-test-control |
| Toolchain / IDE | SW4STM32 |
| Firmware Package Name and Version | STM32Cube FW_F1 V1.8.0 |

## 5.2. 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 | 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 |

# 6. Power Consumption Calculator report

6.1. Microcontroller Selection

| | |
|---|---|
| Series | STM32F1 |
| Line | STM32F103 |
| MCU | STM32F103RETx |
| Datasheet | 14611_Rev12 |

6.2. Parameter Selection

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

# 7. IPs and Middleware Configuration

## 7.1. ADC1

**mode: IN10**

### 7.1.1. Parameter Settings:

| | |
|---|---|
| **ADCs_Common_Settings:** | |
| Mode | Independent mode |
| **ADC_Settings:** | |
| Data Alignment | Right alignment |
| Scan Conversion Mode | Enabled |
| Continuous Conversion Mode | Disabled |
| Discontinuous Conversion Mode | Disabled |
| **ADC_Regular_ConversionMode:** | |
| Enable Regular Conversions | Enable |
| Number Of Conversion | **4 *** |
| External Trigger Conversion Source | Regular Conversion launched by software |
| Rank | 1 |
| Channel | Channel 10 |
| Sampling Time | **55.5 Cycles *** |
| Rank | **2 *** |
| Channel | Channel 10 |
| Sampling Time | 1.5 Cycles |
| Rank | **3 *** |
| Channel | Channel 10 |
| Sampling Time | 1.5 Cycles |
| Rank | **4 *** |
| Channel | Channel 10 |
| Sampling Time | 1.5 Cycles |
| **ADC_Injected_ConversionMode:** | |
| Enable Injected Conversions | Disable |
| **WatchDog:** | |
| Enable Analog WatchDog Mode | false |

## 7.2. GPIO

## 7.3. I2C1

**I2C: I2C**

### 7.3.1. Parameter Settings:

**Master Features:**

| | |
|---|---|
| I2C Speed Mode | **Fast Mode *** |
| I2C Clock Speed (Hz) | 400000 |
| Fast Mode Duty Cycle | Duty cycle Tlow/Thigh = 2 |

**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 |

## 7.4. I2C2

**I2C: I2C**

### 7.4.1. Parameter Settings:

**Master Features:**

| | |
|---|---|
| I2C Speed Mode | **Fast Mode *** |
| I2C Clock Speed (Hz) | 400000 |
| Fast Mode Duty Cycle | Duty cycle Tlow/Thigh = 2 |

**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 |

## 7.5. RCC

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

**Low Speed Clock (LSE) : Crystal/Ceramic Resonator**

### 7.5.1. 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 |
| HSE Startup Timout Value (ms) | 100 |
| LSE Startup Timout Value (ms) | 5000 |

## 7.6. RTC

**mode: Activate Clock Source**

### 7.6.1. Parameter Settings:

**Calendar Time:**

| | |
|---|---|
| Data Format | BCD data format |

**General:**

| | |
|---|---|
| Auto Predivider Calculation | Enabled |
| Asynchronous Predivider value | Automatic Predivider Calculation Enabled |
| Output | Alarm pulse signal on the TAMPER pin |

## 7.7. SDIO

**Mode: SD 4 bits Wide bus**

### 7.7.1. Parameter Settings:

**SDIO parameters:**

| | |
|---|---|
| Clock transition on which the bit capture is made | Rising transition |
| SDIO Clock divider bypass | Disable |
| SDIO Clock output enable when the bus is idle | Disable the power save for the clock |
| SDIO hardware flow control | The hardware control flow is disabled |
| SDIOCLK clock divide factor | 0 |

## 7.8. SPI2

**Mode: Full-Duplex Master**

### 7.8.1. Parameter Settings:

**Basic Parameters:**

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

**Clock Parameters:**

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

**Advanced Parameters:**

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

## *7.9. SYS*

**Debug: Serial Wire**

**Timebase Source: SysTick**

## *7.10. USART1*

**Mode: Asynchronous**

### 7.10.1. Parameter Settings:

**Basic Parameters:**

| | |
|---|---|
| Baud Rate | **921600 *** |
| Word Length | 8 Bits (including Parity) |
| Parity | None |
| Stop Bits | 1 |

**Advanced Parameters:**

| | |
|---|---|
| Data Direction | **Receive Only *** |
| Over Sampling | 16 Samples |

## *7.11. USART2*

**Mode: Asynchronous**

### 7.11.1. Parameter Settings:

**Basic Parameters:**

| | |
|---|---|
| Baud Rate | **9600 *** |
| Word Length | 8 Bits (including Parity) |
| Parity | None |
| Stop Bits | 1 |

**Advanced Parameters:**

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

## *7.12. USB*

**mode: Device (FS)**

### 7.12.1. Parameter Settings:

**Basic Parameters:**

| | |
|---|---|
| Speed | Full Speed 12MBit/s |

**Power Parameters:**

| | |
|---|---|
| Low Power | Disabled |
| Link Power Management | Disabled |
| Battery Charging | Disabled |

## *7.13. FATFS*

**mode: SD Card**

### 7.13.1. Set Defines:

**Version:**

| | |
|---|---|
| FATFS version | R0.11 |

**Function Parameters:**

| | |
|---|---|
| FS_READONLY (Read-only mode) | Disabled |
| FS_MINIMIZE (Minimization level) | Disabled |
| USE_STRFUNC (String functions) | Enabled with LF -> CRLF conversion |
| USE_FIND (Find functions) | Disabled |
| USE_MKFS (Make filesystem function) | Enabled |
| USE_FASTSEEK (Fast seek function) | Enabled |
| USE_LABEL (Volume label functions) | Disabled |

| | |
|---|---|
| USE_FORWARD (Forward function) | Disabled |

**Locale and Namespace Parameters:**

| | |
|---|---|
| CODE_PAGE (Code page on target) | **Simplified Chinese GBK (DBCS, OEM, Windows) *** |
| USE_LFN (Use Long Filename) | **Enabled with dynamic working buffer on the STACK *** |
| MAX_LFN (Max Long Filename) | 255 |
| LFN_UNICODE (Enable Unicode) | ANSI/OEM |
| STRF_ENCODE (Character encoding) | UTF-8 |
| FS_RPATH (Relative Path) | Disabled |

**Physical Drive Parameters:**

| | |
|---|---|
| VOLUMES (Logical drives) | 1 |
| MAX_SS (Maximum Sector Size) | 512 |
| MIN_SS (Minimum Sector Size) | 512 |
| MULTI_PARTITION (Volume partitions feature) | Disabled |
| USE_TRIM (Erase feature) | Disabled |
| FS_NOFSINFO (Force full FAT scan) | 0 |

**System Parameters:**

| | |
|---|---|
| FS_TINY (Tiny mode) | Disabled |
| FS_NORTC (Timestamp feature) | Dynamic timestamp |
| NORTC_YEAR (Year for timestamp) | 2015 |
| NORTC_MON (Month for timestamp) | 6 |
| NORTC_MDAY (Day for timestamp) | 4 |
| WORD_ACCESS (Platform dependent access option) | Byte access |
| FS_REENTRANT (Re-Entrancy) | Disabled |
| FS_TIMEOUT (Timeout ticks) | 1000 |
| SYNC_t (O/S sync object) | osSemaphoreId |
| FS_LOCK (Number of files opened simultaneously) | 2 |

### 7.13.2. Advanced Settings:

**SDIO/SDMMC:**

| | |
|---|---|
| SDIO instance | SDIO |
| BSP code for SD | Generic |

## *7.14. USB_DEVICE*

## Class For FS IP: Communication Device Class (Virtual Port Com)

### 7.14.1. Parameter Settings:

**Basic Parameters:**

| | |
|---|---|
| USBD_MAX_NUM_INTERFACES (Maximum number of supported interfaces) | 1 |
| USBD_MAX_NUM_CONFIGURATION (Maximum number of supported configuration) | 1 |
| USBD_MAX_STR_DESC_SIZ (Maximum size for the string descriptors) | 512 |
| USBD_SELF_POWERED (Enabled self power) | Enabled |
| USBD_DEBUG_LEVEL (USBD Debug Level) | 0: No debug message |

**Class Parameters:**

| | |
|---|---|
| USB CDC Rx Buffer Size | 1000 |
| USB CDC Tx Buffer Size | 1000 |

### 7.14.2. Device Descriptor:

**Device Descriptor:**

| | |
|---|---|
| VID (Vendor IDentifier) | 1155 |
| LANGID_STRING (Language Identifier) | English(United States) |
| MANUFACTURER_STRING (Manufacturer Identifier) | **MSDY Tech (USBCDC) *** |

**Device Descriptor FS:**

| | |
|---|---|
| PID (Product IDentifier) | 22336 |
| PRODUCT_STRING (Product Identifier) | STM32 Virtual ComPort |
| CONFIGURATION_STRING (Configuration Identifier) | CDC Config |
| INTERFACE_STRING (Interface Identifier) | CDC Interface |

*** User modified value**

# 8. System Configuration

## 8.1. GPIO configuration

| IP | Pin | Signal | GPIO mode | GPIO pull/up pull down | Max Speed | User Label |
|---|---|---|---|---|---|---|
| ADC1 | PC0 | ADC1_IN10 | Analog mode | n/a | n/a | V_BATT_ADC |
| I2C1 | PB6 | I2C1_SCL | Alternate Function Open Drain | n/a | **High *** | INA226_SCL |
| | PB7 | I2C1_SDA | Alternate Function Open Drain | n/a | **High *** | INA226_SDA |
| I2C2 | PB10 | I2C2_SCL | Alternate Function Open Drain | n/a | **High *** | BUS_SCL |
| | PB11 | I2C2_SDA | Alternate Function Open Drain | n/a | **High *** | BUS_SDA |
| RCC | PC14-OSC32_IN | RCC_OSC32_IN | n/a | n/a | n/a | |
| | PC15-OSC32_OUT | RCC_OSC32_OUT | n/a | n/a | n/a | |
| | PD0-OSC_IN | RCC_OSC_IN | n/a | n/a | n/a | |
| | PD1-OSC_OUT | RCC_OSC_OUT | n/a | n/a | n/a | |
| SDIO | PC8 | SDIO_D0 | Alternate Function Push Pull | n/a | High | |
| | PC9 | SDIO_D1 | Alternate Function Push Pull | n/a | High | |
| | PC10 | SDIO_D2 | Alternate Function Push Pull | n/a | High | |
| | PC11 | SDIO_D3 | Alternate Function Push Pull | n/a | High | |
| | PC12 | SDIO_CK | Alternate Function Push Pull | n/a | High | |
| | PD2 | SDIO_CMD | Alternate Function Push Pull | n/a | High | |
| 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- | n/a | n/a | n/a | |

| IP | Pin | Signal | GPIO mode | GPIO pull/up pull down | Max Speed | User Label |
|---|---|---|---|---|---|---|
| | | SWDIO | | | | |
| | PA14 | SYS_JTCK-SWCLK | n/a | n/a | 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** | |
| USART2 | PA2 | USART2_TX | Alternate Function Push Pull | n/a | **High *** | |
| | PA3 | USART2_RX | Input mode | No pull-up and no pull-down | **n/a** | |
| USB | PA11 | USB_DM | n/a | n/a | n/a | |
| | PA12 | USB_DP | n/a | n/a | n/a | |
| Single Mapped Signals | PB3 | SYS_JTDO-TRACESWO | n/a | n/a | n/a | |
| GPIO | PC1 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | M_GPIO_L1 |
| | PC2 | GPIO_Input | Input mode | No pull-up and no pull-down | n/a | M_PSM_IND |
| | PC3 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | M_GPIO_L2 |
| | PA0-WKUP | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | M_GPIO_L3 |
| | PA1 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | M_GPIO_L4 |
| | PA4 | GPIO_Output | Output Push Pull | **Pull-up *** | Low | M_PWRKEY |
| | PA5 | GPIO_Output | Output Push Pull | **Pull-up *** | Low | M_RESET |
| | PA6 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | M_WAKEUP_FROM_PSM |
| | PA7 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | M_AP_READY |
| | PC4 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | LED0 |
| | PC5 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | LED1 |
| | PB0 | GPIO_EXTI0 | **External Interrupt Mode with Falling** | **Pull-up *** | n/a | BUTTON1 |
| | PB1 | GPIO_EXTI1 | **External** | **Pull-up *** | n/a | BUTTON2 |

| IP | Pin | Signal | GPIO mode | GPIO pull/up pull down | Max Speed | User Label |
|---|---|---|---|---|---|---|
| | | | **Interrupt Mode with Falling** | | | |
| | PB12 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | M_SPI_CS |
| | PC6 | GPIO_Input | Input mode | No pull-up and no pull-down | n/a | M_RI |
| | PC7 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | M_GPIO_R3 |
| | PA8 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | M_GPIO_R2 |
| | PA15 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | M_GPIO_R1 |
| | PB4 | GPIO_Input | Input mode | No pull-up and no pull-down | n/a | TF_DET |
| | PB5 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | GPIO_2 |
| | PB8 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | GPIO_3 |
| | PB9 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | GPIO_4 |

## 8.2. DMA configuration

| DMA request | Stream | Direction | Priority |
|---|---|---|---|
| SDIO | DMA2_Channel4 | Memory To Peripheral | Low |
| USART2_RX | DMA1_Channel6 | Peripheral To Memory | Low |
| USART2_TX | DMA1_Channel7 | Memory To Peripheral | Low |
| USART1_RX | DMA1_Channel5 | Peripheral To Memory | **Medium *** |
| MEMTOMEM | DMA1_Channel1 | Memory To Memory | Low |

### *SDIO: DMA2_Channel4 DMA request Settings:*

| | |
|---|---|
| Mode: | **Circular *** |
| Peripheral Increment: | Disable |
| Memory Increment: | **Enable *** |
| Peripheral Data Width: | **Word *** |
| Memory Data Width: | Word |

### *USART2_RX: DMA1_Channel6 DMA request Settings:*

| | |
|---|---|
| Mode: | Normal |
| Peripheral Increment: | Disable |
| Memory Increment: | **Enable *** |
| Peripheral Data Width: | Byte |
| Memory Data Width: | Byte |

### *USART2_TX: DMA1_Channel7 DMA request Settings:*

| | |
|---|---|
| Mode: | Normal |
| Peripheral Increment: | Disable |
| Memory Increment: | **Enable *** |
| Peripheral Data Width: | Byte |
| Memory Data Width: | Byte |

### *USART1_RX: DMA1_Channel5 DMA request Settings:*

| | |
|---|---|
| Mode: | Normal |
| Peripheral Increment: | Disable |
| Memory Increment: | **Enable *** |
| Peripheral Data Width: | Byte |
| Memory Data Width: | Byte |

### *MEMTOMEM: DMA1_Channel1 DMA request Settings:*

| | |
|---|---|
| Mode: | Normal |
| Src Memory Increment: | **Enable *** |
| Dst Memormy Increment: | **Enable *** |
| Src Memory Data Width: | Byte |
| Dst Memormy Data Width: | Byte |

## 8.3. NVIC configuration

| Interrupt Table | Enable | Preenmption Priority | SubPriority |
|---|---|---|---|
| Non maskable interrupt | true | 0 | 0 |
| Hard fault interrupt | true | 0 | 0 |
| Memory management fault | true | 0 | 0 |
| Prefetch fault, memory access fault | true | 0 | 0 |
| Undefined instruction or illegal state | true | 0 | 0 |
| System service call via SWI instruction | true | 0 | 0 |
| Debug monitor | true | 0 | 0 |
| Pendable request for system service | true | 0 | 0 |
| System tick timer | true | 0 | 0 |
| RTC global interrupt | true | 0 | 0 |
| EXTI line0 interrupt | true | 3 | 0 |
| EXTI line1 interrupt | true | 3 | 0 |
| DMA1 channel5 global interrupt | true | 0 | 0 |
| DMA1 channel6 global interrupt | true | 0 | 0 |
| DMA1 channel7 global interrupt | true | 0 | 0 |
| USB low priority or CAN RX0 interrupts | true | 0 | 0 |
| USART2 global interrupt | true | 1 | 0 |
| SDIO global interrupt | true | 2 | 0 |
| DMA2 channel4 and channel5 global interrupts | true | 2 | 0 |
| PVD interrupt through EXTI line 16 | unused | | |
| Flash global interrupt | unused | | |
| RCC global interrupt | unused | | |
| DMA1 channel1 global interrupt | unused | | |
| ADC1 and ADC2 global interrupts | unused | | |
| USB high priority or CAN TX interrupts | unused | | |
| I2C1 event interrupt | unused | | |
| I2C1 error interrupt | unused | | |
| I2C2 event interrupt | unused | | |
| I2C2 error interrupt | unused | | |
| SPI2 global interrupt | unused | | |
| USART1 global interrupt | unused | | |

*** User modified value**

# 9. Software Pack Report