1. Description

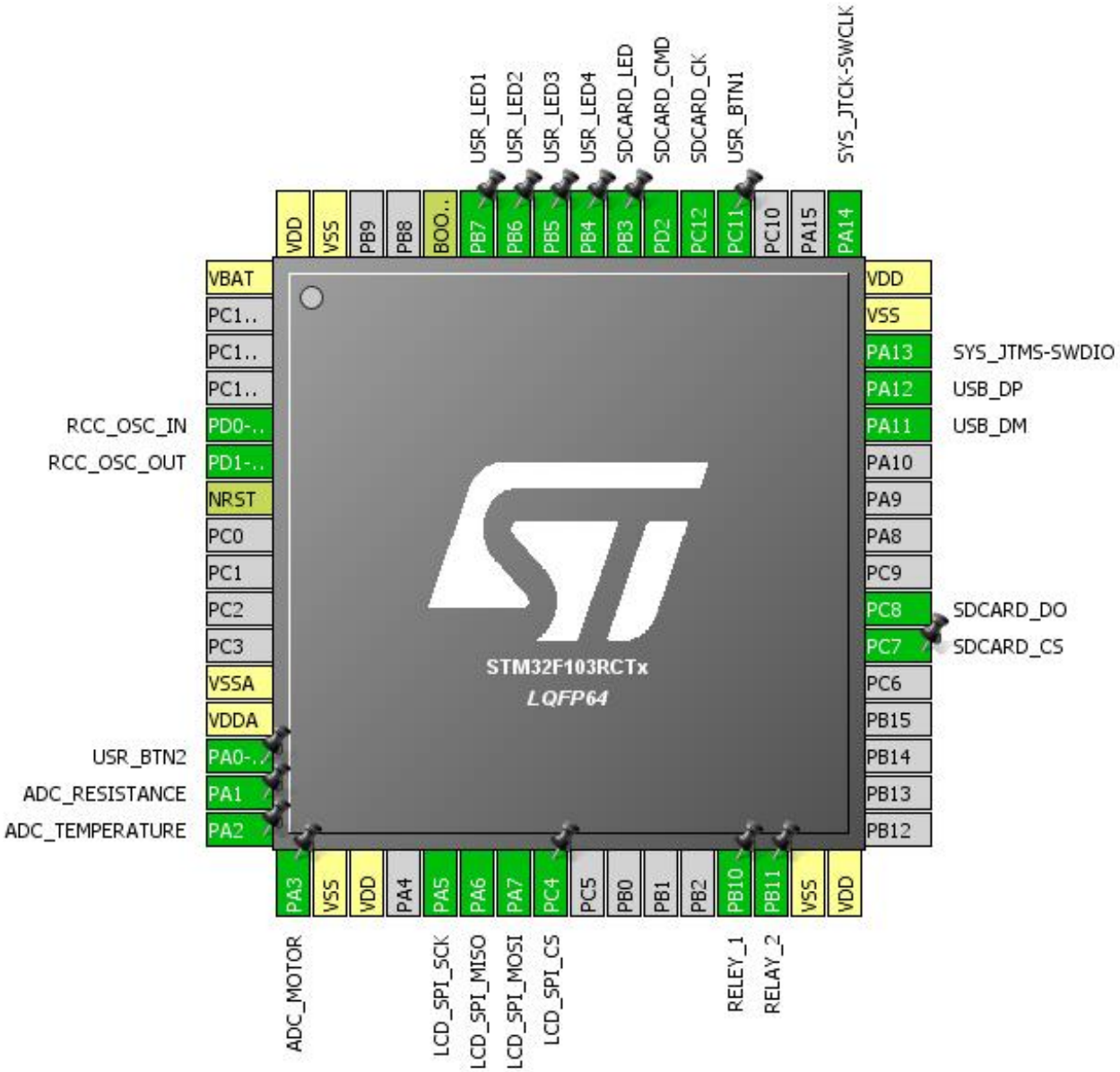
1.1. Project

Project Name	Vijay_Prj1
Board Name	custom
Generated with:	STM32CubeMX 4.27.0
Date	09/19/2019

1.2. MCU

MCU Series	STM32F1
MCU Line	STM32F103
MCU name	STM32F103RCTx
MCU Package	LQFP64
MCU Pin number	64

2. Pinout Configuration



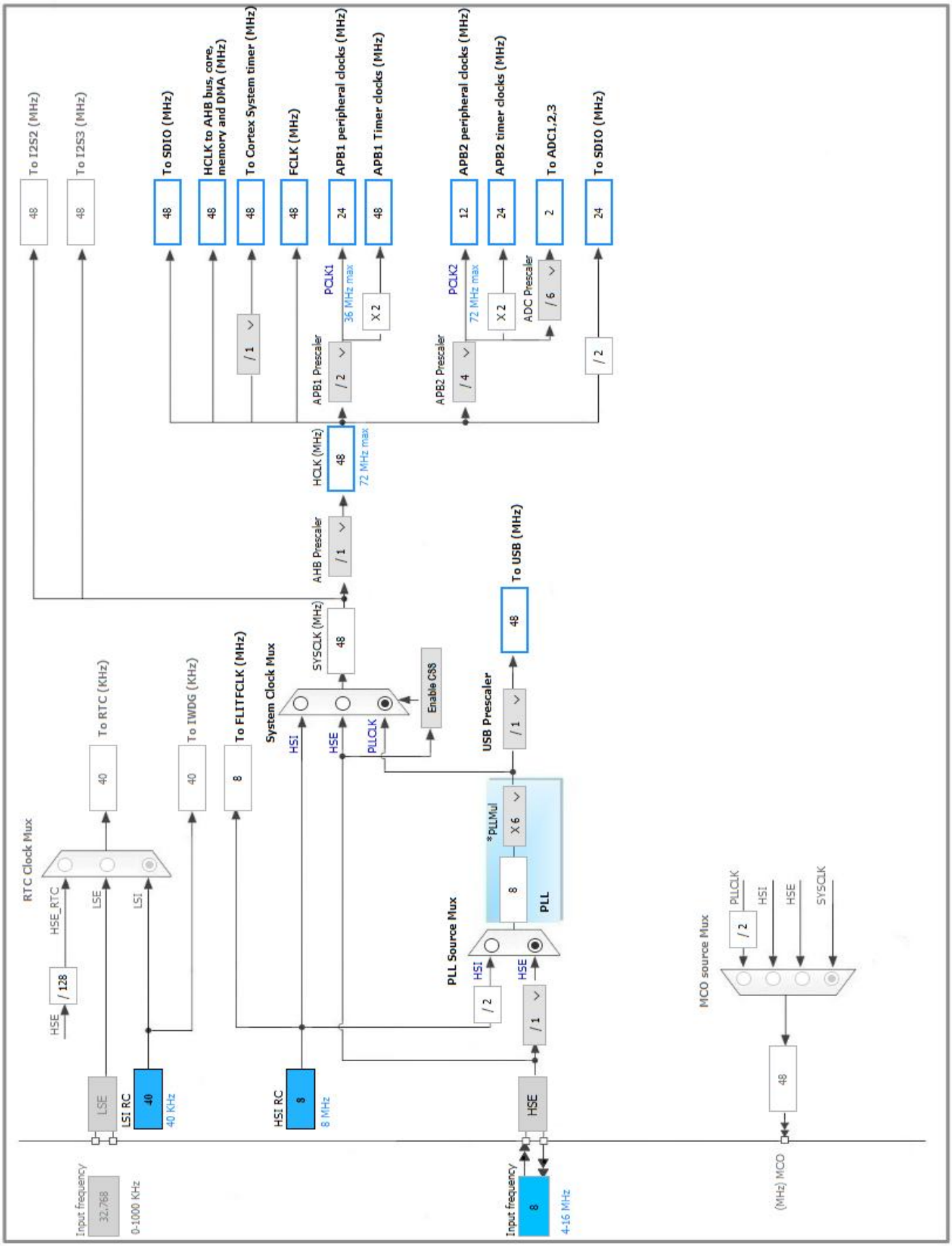
3. Pins Configuration

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
5	PD0-OSC_IN	I/O	RCC_OSC_IN	
6	PD1-OSC_OUT	I/O	RCC_OSC_OUT	
7	NRST	Reset		
12	VSSA	Power		
13	VDDA	Power		
14	PA0-WKUP	I/O	GPIO_EXTI0	USR_BTN2
15	PA1	I/O	ADC1_IN1	ADC_RESISTANCE
16	PA2	I/O	ADC1_IN2	ADC_TEMPERATURE
17	PA3	I/O	ADC1_IN3	ADC_MOTOR
18	VSS	Power		
19	VDD	Power		
21	PA5	I/O	SPI1_SCK	LCD_SPI_SCK
22	PA6	I/O	SPI1_MISO	LCD_SPI_MISO
23	PA7	I/O	SPI1_MOSI	LCD_SPI_MOSI
24	PC4 *	I/O	GPIO_Output	LCD_SPI_CS
29	PB10 *	I/O	GPIO_Output	RELEY_1
30	PB11 *	I/O	GPIO_Output	RELAY_2
31	VSS	Power		
32	VDD	Power		
38	PC7 *	I/O	GPIO_Output	SDCARD_CS
39	PC8	I/O	SDIO_D0	SDCARD_DO
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	
52	PC11	I/O	GPIO_EXTI11	USR_BTN1
53	PC12	I/O	SDIO_CK	SDCARD_CK
54	PD2	I/O	SDIO_CMD	SDCARD_CMD
55	PB3 *	I/O	GPIO_Output	SDCARD_LED
56	PB4 *	I/O	GPIO_Output	USR_LED4
57	PB5 *	I/O	GPIO_Output	USR_LED3
58	PB6 *	I/O	GPIO_Output	USR_LED2
59	PB7 *	I/O	GPIO_Output	USR_LED1

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
60	BOOT0	Boot		
63	VSS	Power		
64	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. ADC1

mode: IN1

mode: IN2

mode: IN3

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 Source	Regular Conversion launched by software
Rank	1
Channel	Channel 1
Sampling Time	1.5 Cycles

ADC_Injected_ConversionMode:

Number Of Conversions	0

WatchDog:

Enable Analog WatchDog Mode	false

5.2. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

5.2.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Prefetch Buffer	Enabled
Flash Latency(WS)	1 WS (2 CPU cycle)

RCC Parameters:

HSI Calibration Value	16
HSE Startup Timout Value (ms)	100

LSE Startup Timout Value (ms)	5000

5.3. SDIO

Mode: SD 1 bit

5.3.1. 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

5.4. SPI1

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	**6.0 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

5.5. SYS

Debug: Serial Wire

Timebase Source: SysTick

5.6. TIM2

Clock Source : Internal Clock

5.6.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**480-1 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**1000-1 ***
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	Reset (UG bit from TIMx_EGR)

5.7. TIM3

Clock Source : Internal Clock

5.7.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**480-1 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**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	Reset (UG bit from TIMx_EGR)

5.8. USB

mode: Device (FS)

5.8.1. Parameter Settings:

Basic Parameters:

Speed	Full Speed 12MBit/s
Endpoint 0 Max Packet size	8 Bytes

Power Parameters:

Low Power	Disabled
Link Power Management	Disabled
Battery Charging	Disabled

5.9. FATFS

mode: SD Card

5.9.1. 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)	Multilingual Latin 1 (OEM)
USE_LFN (Use Long Filename)	Disabled
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

5.9.2. IPs instances:

SDIO/SDMMC:

SDIO instance	SDIO

5.10. USB_DEVICE

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

5.10.1. 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_SUPPORT_USER_STRING (Enable user string descriptor)	Disabled
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

5.10.2. Device Descriptor:

Device Descriptor:

VID (Vendor IDentifier)	1155
LANGID_STRING (Language Identifier)	English(United States)
MANUFACTURER_STRING (Manufacturer Identifier)	STMicroelectronics

Device Descriptor FS:

PID (Product IDentifier)	22336
PRODUCT_STRING (Product Identifier)	STM32 Virtual ComPort
SERIALNUMBER_STRING (Serial number)	00000000001A
CONFIGURATION_STRING (Configuration Identifier)	CDC Config

INTERFACE_STRING (Interface Identifier)	CDC Interface

*** 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	PA1	ADC1_IN1	Analog mode	n/a	n/a	ADC_RESISTANCE
	PA2	ADC1_IN2	Analog mode	n/a	n/a	ADC_TEMPERATURE
	PA3	ADC1_IN3	Analog mode	n/a	n/a	ADC_MOTOR
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	
SDIO	PC8	SDIO_D0	Alternate Function Push Pull	n/a	High	SDCARD_DO
	PC12	SDIO_CK	Alternate Function Push Pull	n/a	High	SDCARD_CK
	PD2	SDIO_CMD	Alternate Function Push Pull	n/a	High	SDCARD_CMD
SPI1	PA5	SPI1_SCK	Alternate Function Push Pull	n/a	**High ***	LCD_SPI_SCK
	PA6	SPI1_MISO	Input mode	No pull-up and no pull-down	**n/a**	LCD_SPI_MISO
	PA7	SPI1_MOSI	Alternate Function Push Pull	n/a	**High ***	LCD_SPI_MOSI
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
USB	PA11	USB_DM	n/a	n/a	n/a	
	PA12	USB_DP	n/a	n/a	n/a	
GPIO	PA0-WKUP	GPIO_EXTI0	**External Interrupt Mode with Rising/Falling edge**	**Pull-up ***	n/a	USR_BTN2
	PC4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	LCD_SPI_CS
	PB10	GPIO_Output	Output Push Pull	**Pull-down ***	**High ***	RELEY_1
	PB11	GPIO_Output	Output Push Pull	**Pull-down ***	**High ***	RELAY_2
	PC7	GPIO_Output	Output Push Pull	**Pull-up ***	**High ***	SDCARD_CS
	PC11	GPIO_EXTI11	**External Interrupt Mode with Rising/Falling edge**	**Pull-up ***	**n/a**	USR_BTN1
	PB3	GPIO_Output	Output Push Pull	**Pull-down ***	**Medium ***	SDCARD_LED
	PB4	GPIO_Output	Output Push Pull	**Pull-down ***	**Medium ***	USR_LED4
	PB5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**Medium ***	USR_LED3
	PB6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**Medium ***	USR_LED2
	PB7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**Medium ***	USR_LED1

6.2. DMA configuration

nothing configured in DMA service

6.3. 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
ADC1 and ADC2 global interrupts	true	0	0
USB low priority or CAN RX0 interrupts	true	0	0
TIM2 global interrupt	true	0	0
TIM3 global interrupt	true	0	0
SPI1 global interrupt	true	0	0
SDIO global interrupt	true	0	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
EXTI line0 interrupt	unused		
USB high priority or CAN TX interrupts	unused		
EXTI line[15:10] interrupts	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F1
Line	STM32F103
MCU	STM32F103RCTx
Datasheet	14611_Rev12

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	Vijay_Prj1
Project Folder	D:\Dev_Project\Vijay_Prj\Vijay_Prj1
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_F1 V1.6.1

8.2. Code Generation Settings

Name	Value
STM32Cube Firmware Library Package	Copy all used libraries into the project folder
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

9. Software Pack Report