

## 1. Description

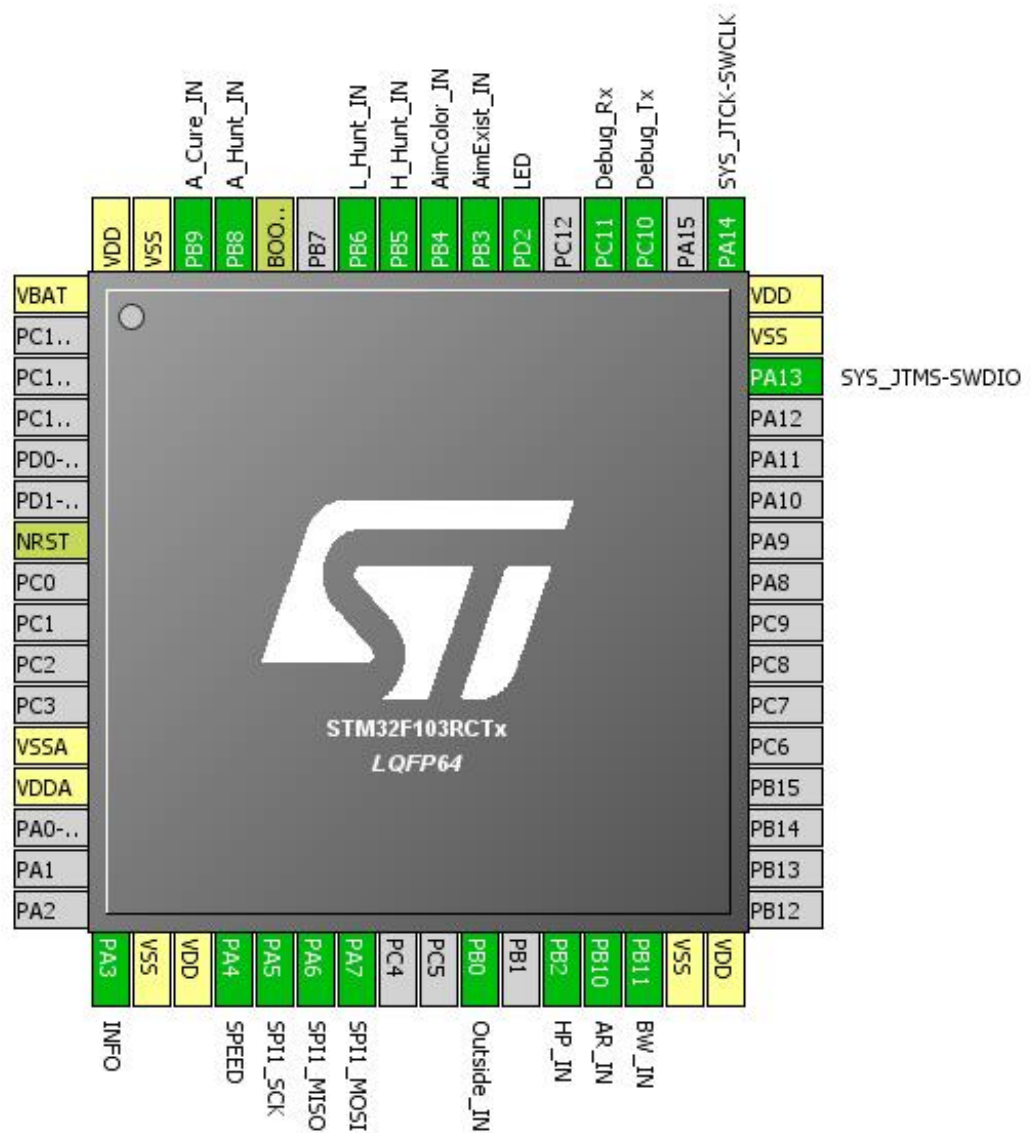
### 1.1. Project

Project Name	BetaRust_Master
Board Name	BetaRust_Master
Generated with:	STM32CubeMX 4.16.1
Date	10/20/2016

### 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		
7	NRST	Reset		
12	VSSA	Power		
13	VDDA	Power		
17	PA3 *	I/O	GPIO_Output	INFO
18	VSS	Power		
19	VDD	Power		
20	PA4 *	I/O	GPIO_Output	SPEED
21	PA5	I/O	SPI1_SCK	
22	PA6	I/O	SPI1_MISO	
23	PA7	I/O	SPI1_MOSI	
26	PB0	I/O	GPIO_EXTI0	Outside_IN
28	PB2	I/O	GPIO_EXTI2	HP_IN
29	PB10	I/O	GPIO_EXTI10	AR_IN
30	PB11	I/O	GPIO_EXTI11	BW_IN
31	VSS	Power		
32	VDD	Power		
46	PA13	I/O	SYS_JTMS-SWDIO	
47	VSS	Power		
48	VDD	Power		
49	PA14	I/O	SYS_JTCK-SWCLK	
51	PC10	I/O	USART3_TX	Debug_Tx
52	PC11	I/O	USART3_RX	Debug_Rx
54	PD2 *	I/O	GPIO_Output	LED
55	PB3	I/O	GPIO_EXTI3	AimExist_IN
56	PB4	I/O	GPIO_EXTI4	AimColor_IN
57	PB5	I/O	GPIO_EXTI5	H_Hunt_IN
58	PB6	I/O	GPIO_EXTI6	L_Hunt_IN
60	BOOT0	Boot		
61	PB8	I/O	GPIO_EXTI8	A_Hunt_IN
62	PB9	I/O	GPIO_EXTI9	A_Cure_IN
63	VSS	Power		
64	VDD	Power		

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



## 5. IPs and Middleware Configuration

### 5.1. SPI1

**Mode: Full-Duplex Slave**

#### 5.1.1. 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>4.0 MBits/s *</b>
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

**Advanced Parameters:**

CRC Calculation	Disabled
NSS Signal Type	Software

### 5.2. SYS

**Debug: Serial Wire**

**Timebase Source: SysTick**

### 5.3. USART3

**Mode: Asynchronous**

#### 5.3.1. Parameter Settings:

**Basic Parameters:**

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

**Advanced Parameters:**

Data Direction  
Over Sampling

Receive and Transmit  
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
SPI1	PA5	SPI1_SCK	Input mode	No pull-up and no pull-down	n/a	
	PA6	SPI1_MISO	Alternate Function Push Pull	n/a	<b>High *</b>	
	PA7	SPI1_MOSI	Input mode	No pull-up and no pull-down	<b>n/a</b>	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
USART3	PC10	USART3_TX	Alternate Function Push Pull	n/a	<b>High *</b>	Debug_Tx
	PC11	USART3_RX	Input mode	No pull-up and no pull-down	<b>n/a</b>	Debug_Rx
GPIO	PA3	GPIO_Output	Output Push Pull	n/a	Low	INFO
	PA4	GPIO_Output	Output Push Pull	n/a	Low	SPEED
	PB0	GPIO_EXTI0	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	Outside_IN
	PB2	GPIO_EXTI2	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	HP_IN
	PB10	GPIO_EXTI10	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	AR_IN
	PB11	GPIO_EXTI11	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	BW_IN
	PD2	GPIO_Output	Output Push Pull	n/a	Low	LED
	PB3	GPIO_EXTI3	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	AimExist_IN
	PB4	GPIO_EXTI4	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	AimColor_IN
	PB5	GPIO_EXTI5	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	H_Hunt_IN
	PB6	GPIO_EXTI6	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	L_Hunt_IN
	PB8	GPIO_EXTI8	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	A_Hunt_IN
	PB9	GPIO_EXTI9	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	A_Cure_IN

### 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
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
EXTI line0 interrupt	unused		
EXTI line2 interrupt	unused		
EXTI line3 interrupt	unused		
EXTI line4 interrupt	unused		
EXTI line[9:5] interrupts	unused		
SPI1 global interrupt	unused		
USART3 global interrupt	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	BetaRust_Master
Project Folder	C:\Users\Zero Weight\Documents\A-Heaven_Sent-Chance\BetaRust_Master
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_F1 V1.4.0

### 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	Yes
Backup previously generated files 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