

## 1. Description

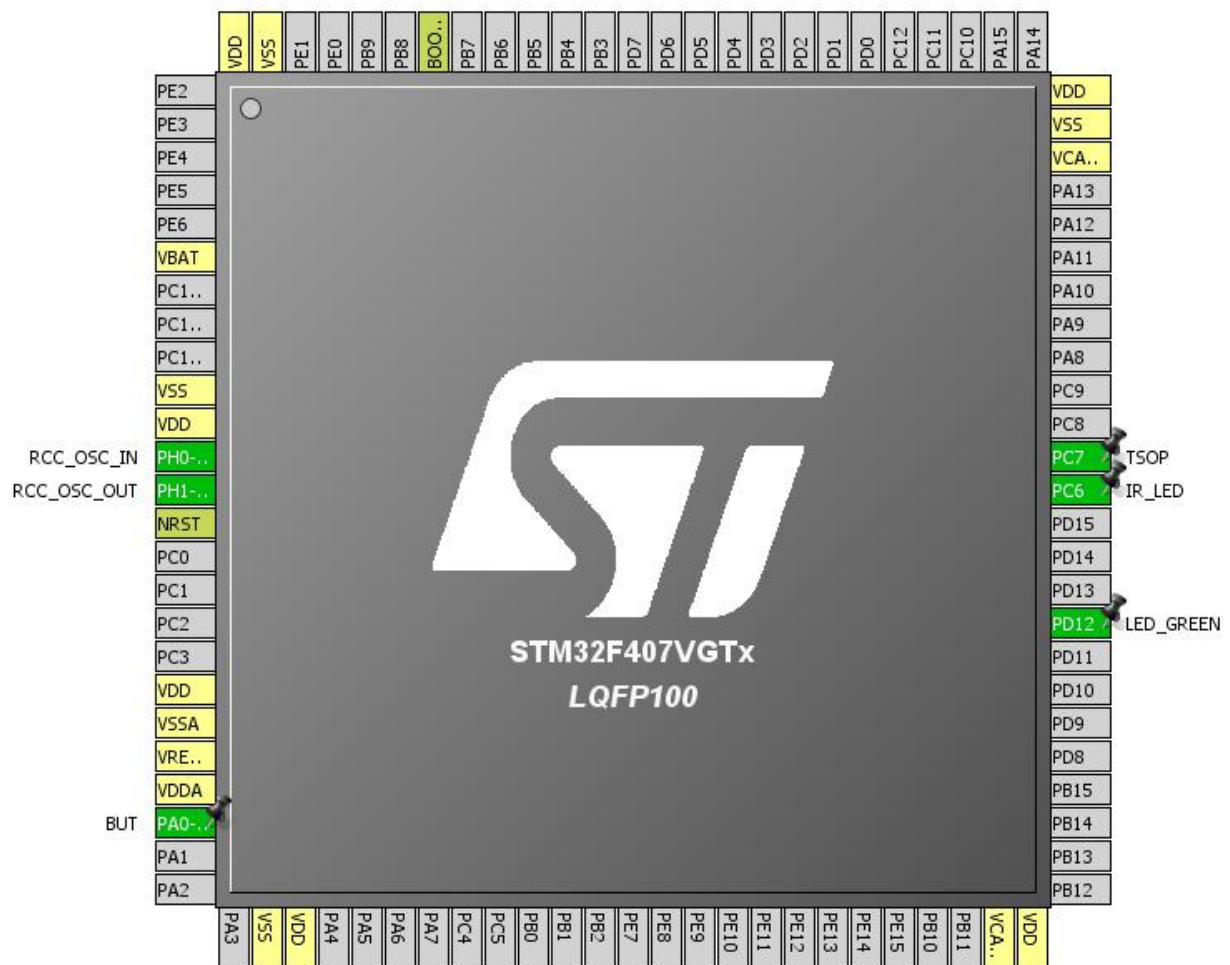
### 1.1. Project

Project Name	RC5
Board Name	RC5
Generated with:	STM32CubeMX 4.18.0
Date	01/11/2017

### 1.2. MCU

MCU Series	STM32F4
MCU Line	STM32F407/417
MCU name	STM32F407VGTx
MCU Package	LQFP100
MCU Pin number	100

## 2. Pinout Configuration

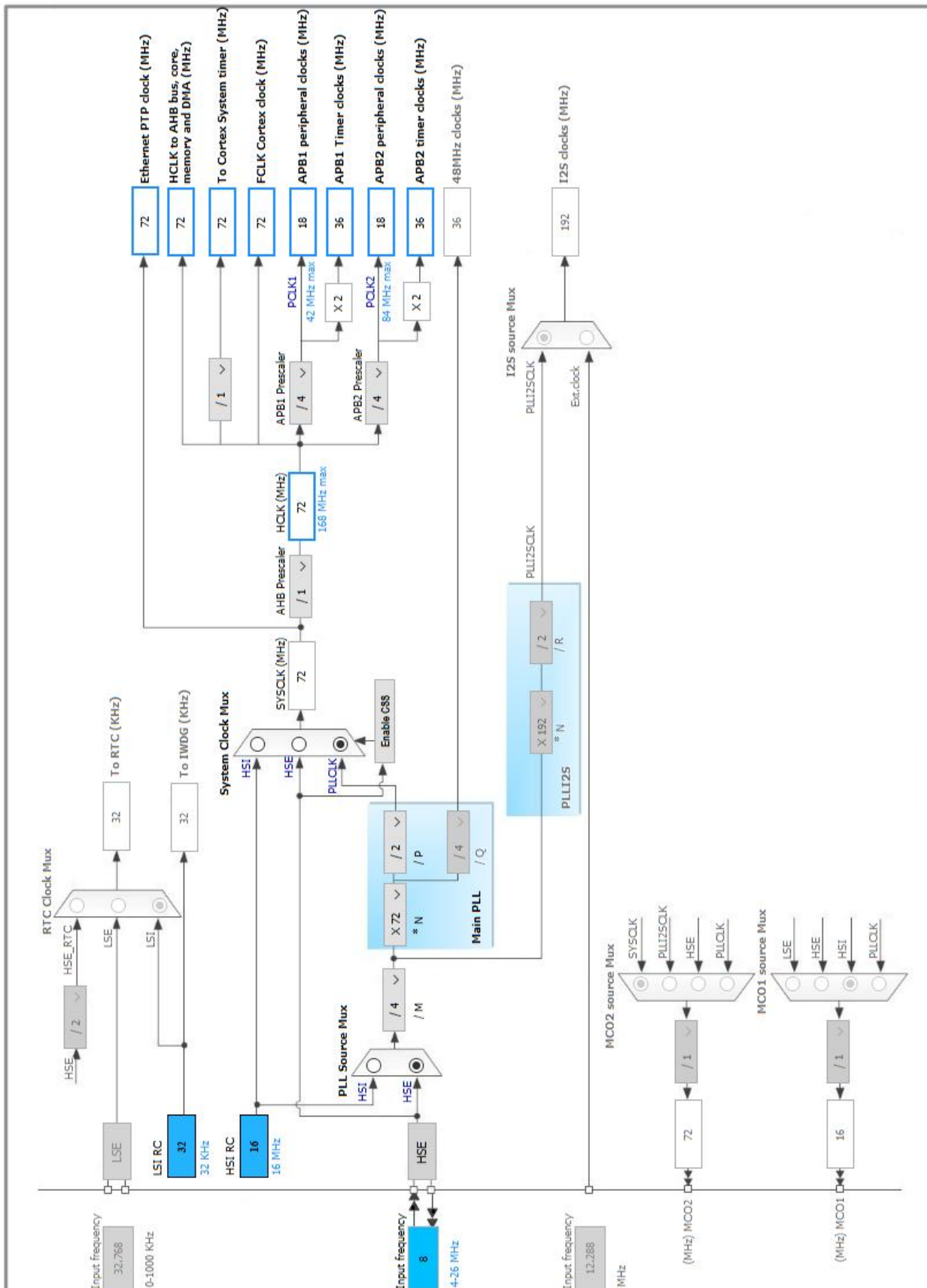


### 3. Pins Configuration

Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
6	VBAT	Power		
10	VSS	Power		
11	VDD	Power		
12	PH0-OSC_IN	I/O	RCC_OSC_IN	
13	PH1-OSC_OUT	I/O	RCC_OSC_OUT	
14	NRST	Reset		
19	VDD	Power		
20	VSSA	Power		
21	VREF+	Power		
22	VDDA	Power		
23	PA0-WKUP *	I/O	GPIO_Input	BUT
27	VSS	Power		
28	VDD	Power		
49	VCAP_1	Power		
50	VDD	Power		
59	PD12 *	I/O	GPIO_Output	LED_GREEN
63	PC6	I/O	TIM3_CH1	IR_LED
64	PC7	I/O	TIM8_CH2	TSOP
73	VCAP_2	Power		
74	VSS	Power		
75	VDD	Power		
94	BOOT0	Boot		
99	VSS	Power		
100	VDD	Power		

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

## 4. Clock Tree Configuration



## 5. IPs and Middleware Configuration

### 5.1. RCC

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

##### 5.1.1. Parameter Settings:

###### System Parameters:

VDD voltage (V)	3.3
Instruction Cache	Enabled
Prefetch Buffer	Enabled
Data Cache	Enabled
Flash Latency(WS)	2 WS (3 CPU cycle)

###### RCC Parameters:

HSI Calibration Value	16
HSE Startup Timeout Value (ms)	100
LSE Startup Timeout Value (ms)	5000

###### Power Parameters:

Power Regulator Voltage Scale	Power Regulator Voltage Scale 1
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### 5.2. SYS

#### Timebase Source: SysTick

### 5.3. TIM3

#### Clock Source : Internal Clock

#### Channel1: PWM Generation CH1

##### 5.3.1. Parameter Settings:

###### Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value )	999 *
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)

#### **PWM Generation Channel 1:**

Mode	PWM mode 1
Pulse (16 bits value)	0
Fast Mode	<b>Enable *</b>
CH Polarity	High

### **5.4. TIM8**

**Clock Source : Internal Clock**

**Channel2: Input Capture direct mode**

#### **5.4.1. Parameter Settings:**

##### **Counter Settings:**

Prescaler (PSC - 16 bits value)	<b>36 *</b>
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value )	<b>65535 *</b>
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)

##### **Input Capture Channel 2:**

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

**\* User modified value**

## 6. System Configuration

### 6.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
RCC	PH0-OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PH1-OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
TIM3	PC6	TIM3_CH1	Alternate Function Push Pull	No pull-up and no pull-down	<b>Medium *</b>	IR_LED
TIM8	PC7	TIM8_CH2	Alternate Function Push Pull	<b>Pull-up *</b>	<b>High *</b>	TSOP
GPIO	PA0-WKUP	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	BUT
	PD12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED_GREEN

### 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
Pre-fetch 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
TIM3 global interrupt	true	0	0
TIM8 capture compare interrupt	true	0	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
TIM8 break interrupt and TIM12 global interrupt	unused		
TIM8 update interrupt and TIM13 global interrupt	unused		
TIM8 trigger and commutation interrupts and TIM14 global interrupt	unused		
FPU global interrupt	unused		

\* User modified value



## ***7. Power Consumption Calculator report***

### 7.1. Microcontroller Selection

Series	STM32F4
Line	STM32F407/417
MCU	STM32F407VGTx
Datasheet	022152_Rev7

### 7.2. Parameter Selection

Temperature	25
Vdd	3.3

## 8. Software Project

### 8.1. Project Settings

Name	Value
Project Name	RC5
Project Folder	F:\WORK_Space\ \RC5\RC5
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_F4 V1.14.0

### 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	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