1. Description

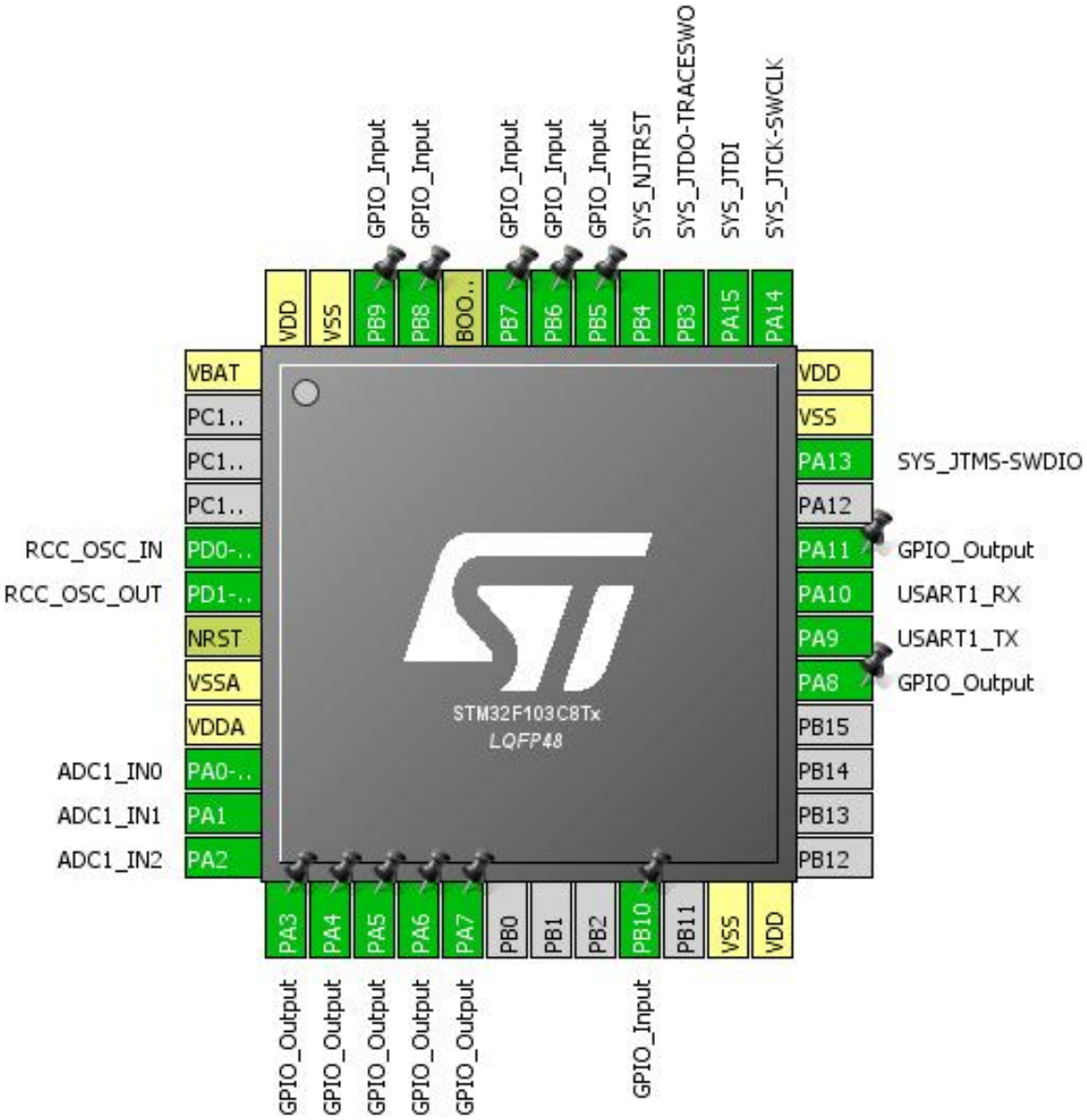
1.1. Project

Project Name	Controller
Board Name	Controller
Generated with:	STM32CubeMX 4.22.1
Date	10/04/2017

1.2. MCU

MCU Series	STM32F1
MCU Line	STM32F103
MCU name	STM32F103C8Tx
MCU Package	LQFP48
MCU Pin number	48

2. Pinout Configuration

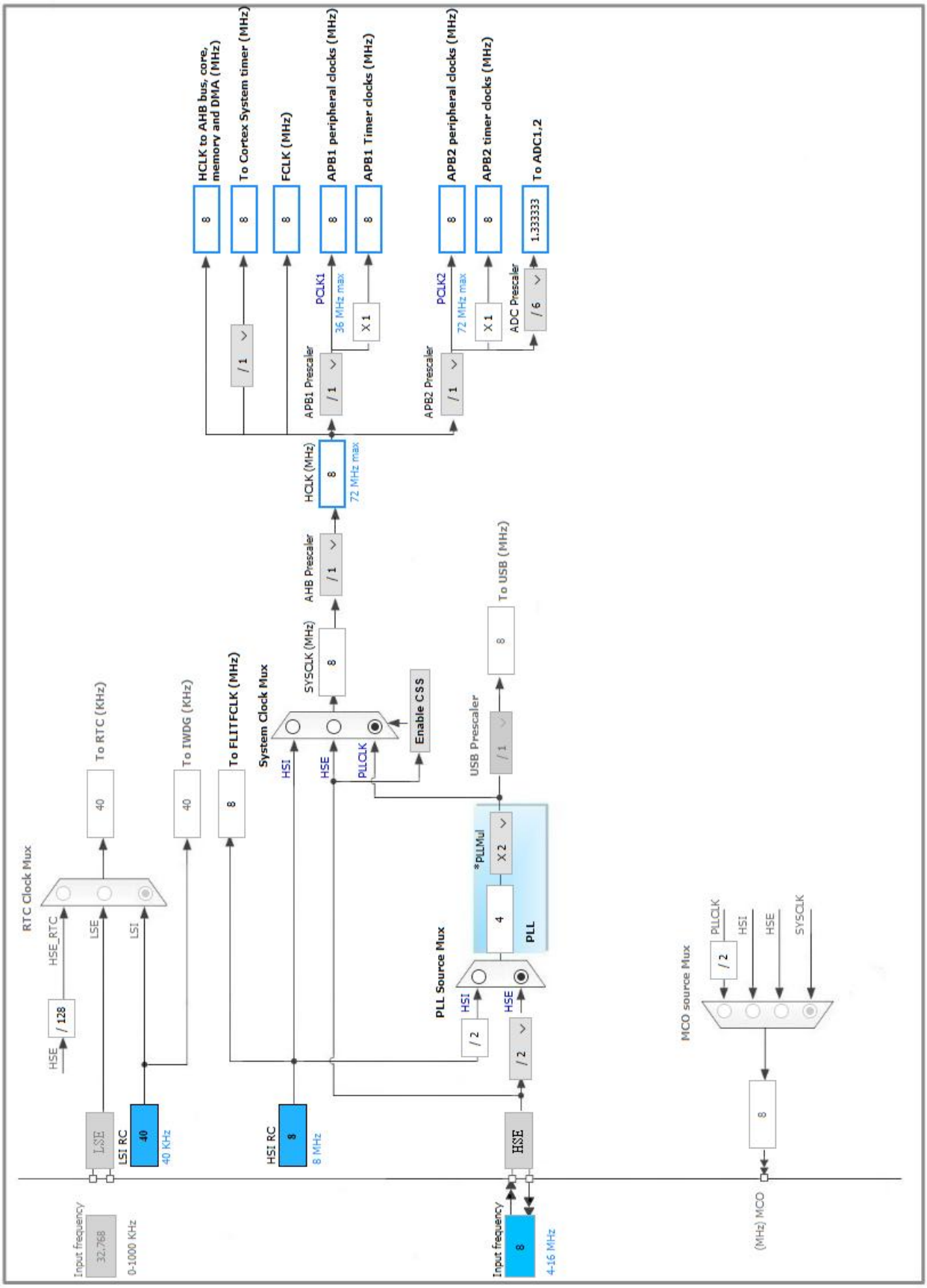


3. Pins Configuration

Pin Number LQFP48	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		
8	VSSA	Power		
9	VDDA	Power		
10	PA0-WKUP	I/O	ADC1_IN0	
11	PA1	I/O	ADC1_IN1	
12	PA2	I/O	ADC1_IN2	
13	PA3 *	I/O	GPIO_Output	
14	PA4 *	I/O	GPIO_Output	
15	PA5 *	I/O	GPIO_Output	
16	PA6 *	I/O	GPIO_Output	
17	PA7 *	I/O	GPIO_Output	
21	PB10 *	I/O	GPIO_Input	
23	VSS	Power		
24	VDD	Power		
29	PA8 *	I/O	GPIO_Output	
30	PA9	I/O	USART1_TX	
31	PA10	I/O	USART1_RX	
32	PA11 *	I/O	GPIO_Output	
34	PA13	I/O	SYS_JTMS-SWDIO	
35	VSS	Power		
36	VDD	Power		
37	PA14	I/O	SYS_JTCK-SWCLK	
38	PA15	I/O	SYS_JTDI	
39	PB3	I/O	SYS_JTDO-TRACESWO	
40	PB4	I/O	SYS_NJTRST	
41	PB5 *	I/O	GPIO_Input	
42	PB6 *	I/O	GPIO_Input	
43	PB7 *	I/O	GPIO_Input	
44	BOOT0	Boot		
45	PB8 *	I/O	GPIO_Input	
46	PB9 *	I/O	GPIO_Input	
47	VSS	Power		
48	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. ADC1

mode: IN0

mode: IN1

mode: IN2

5.1.1. Parameter Settings:

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

Data Alignment	Right alignment
Scan Conversion Mode	Enabled
Continuous Conversion Mode	**Enabled ***
Discontinuous Conversion Mode	Disabled

ADC_Regular_ConversionMode:

Enable Regular Conversions	Enable
Number Of Conversion	**3 ***
External Trigger Conversion Source	Regular Conversion launched by software
Rank	1
Channel	Channel 0
Sampling Time	**239.5 Cycles ***
Rank	**2 ***
Channel	**Channel 1 ***
Sampling Time	**239.5 Cycles ***
Rank	**3 ***
Channel	**Channel 2 ***
Sampling Time	**239.5 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)	0 WS (1 CPU cycle)

RCC Parameters:

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

5.3. SYS

Debug: JTAG (5 pins)

Timebase Source: SysTick

5.4. TIM2

Clock Source : Internal Clock

5.4.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**2828 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**2828 ***
Internal Clock Division (CKD)	No Division
auto-reload preload	**Enable ***

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)

5.5. USART1

Mode: Asynchronous

5.5.1. Parameter Settings:

Basic Parameters:

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

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	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
ADC1	PA0-WKUP	ADC1_IN0	Analog mode	n/a	n/a	
	PA1	ADC1_IN1	Analog mode	n/a	n/a	
	PA2	ADC1_IN2	Analog mode	n/a	n/a	
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	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
	PA15	SYS_JTDI	n/a	n/a	n/a	
	PB3	SYS_JTDO-TRACESWO	n/a	n/a	n/a	
	PB4	SYS_NJTRST	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**	
GPIO	PA3	GPIO_Output	Output Push Pull	n/a	Low	
	PA4	GPIO_Output	Output Push Pull	n/a	Low	
	PA5	GPIO_Output	Output Push Pull	n/a	Low	
	PA6	GPIO_Output	Output Push Pull	n/a	Low	
	PA7	GPIO_Output	Output Push Pull	n/a	Low	
	PB10	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PA8	GPIO_Output	Output Push Pull	n/a	Low	
	PA11	GPIO_Output	Output Push Pull	n/a	Low	
	PB5	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PB6	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PB7	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PB8	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PB9	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	

6.2. DMA configuration

DMA request	Stream	Direction	Priority
ADC1	DMA1_Channel1	Peripheral To Memory	Low
USART1_RX	DMA1_Channel5	Peripheral To Memory	Low

ADC1: DMA1_Channel1 DMA request Settings:

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

USART1_RX: DMA1_Channel5 DMA request Settings:

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

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
DMA1 channel1 global interrupt	true	0	0
DMA1 channel5 global interrupt	true	0	0
ADC1 and ADC2 global interrupts	true	0	0
TIM2 global interrupt	true	0	0
USART1 global interrupt	true	0	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F1
Line	STM32F103
MCU	STM32F103C8Tx
Datasheet	13587_Rev17

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	Controller
Project Folder	C:\Users\H\Desktop\Controller
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_F1 V1.6.0

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