1. Description

1.1. Project

Project Name	WifiClock
Board Name	WifiClock
Generated with:	STM32CubeMX 4.16.1
Date	09/30/2016

1.2. MCU

MCU Series	STM32F0
MCU Line	STM32F0x1
MCU name	STM32F051C8Tx
MCU Package	LQFP48
MCU Pin number	48

2. Pinout Configuration
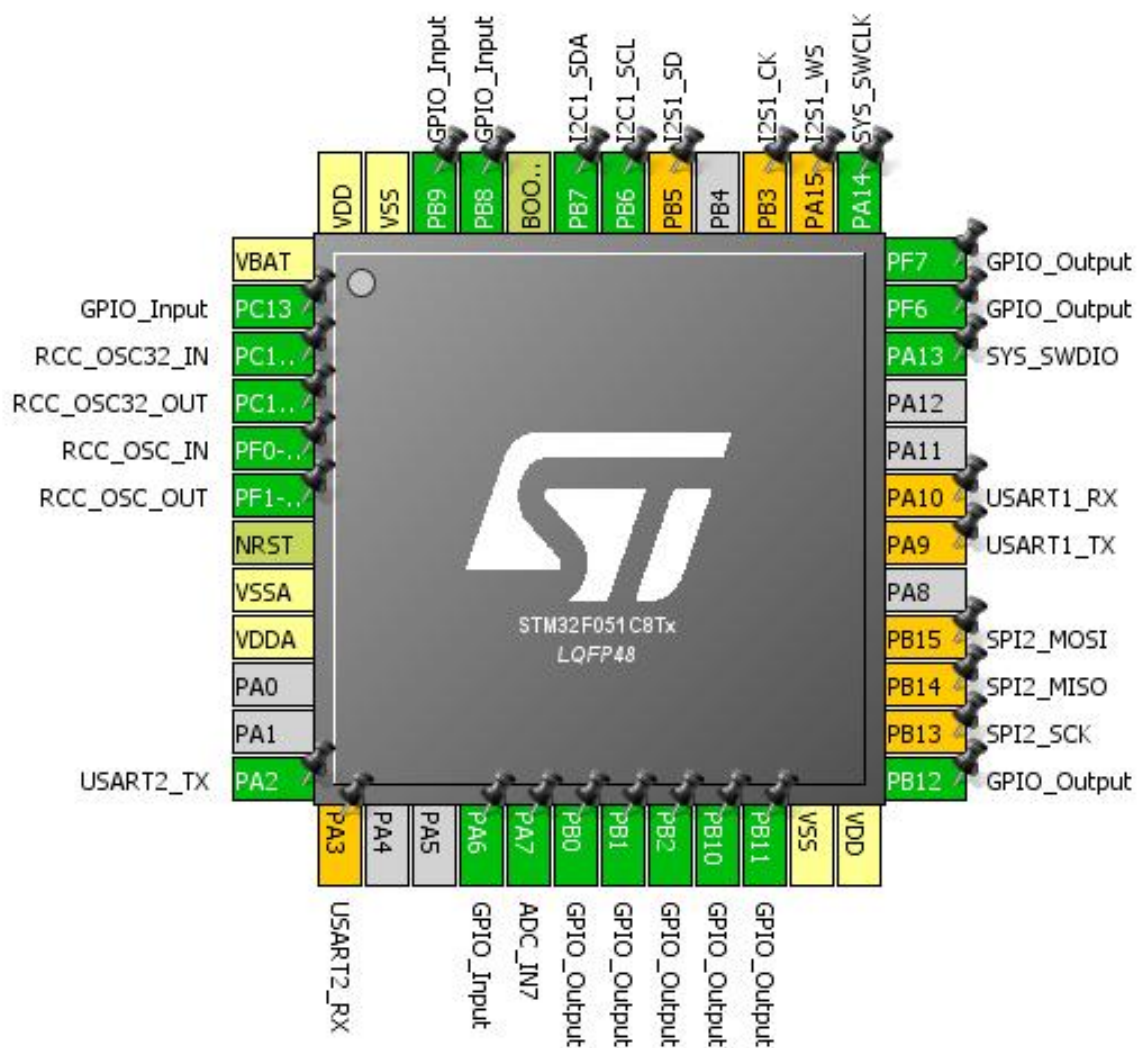
3. Pins Configuration

Pin Number LQFP48	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
2	PC13 *	I/O	GPIO_Input	
3	PC14-OSC32_IN	I/O	RCC_OSC32_IN	
4	PC15-OSC32_OUT	I/O	RCC_OSC32_OUT	
5	PF0-OSC_IN	I/O	RCC_OSC_IN	
6	PF1-OSC_OUT	I/O	RCC_OSC_OUT	
7	NRST	Reset		
8	VSSA	Power		
9	VDDA	Power		
12	PA2	I/O	USART2_TX	
13	PA3 **	I/O	USART2_RX	
16	PA6 *	I/O	GPIO_Input	
17	PA7	I/O	ADC_IN7	
18	PB0 *	I/O	GPIO_Output	
19	PB1 *	I/O	GPIO_Output	
20	PB2 *	I/O	GPIO_Output	
21	PB10 *	I/O	GPIO_Output	
22	PB11 *	I/O	GPIO_Output	
23	VSS	Power		
24	VDD	Power		
25	PB12 *	I/O	GPIO_Output	
26	PB13 **	I/O	SPI2_SCK	
27	PB14 **	I/O	SPI2_MISO	
28	PB15 **	I/O	SPI2_MOSI	
30	PA9 **	I/O	USART1_TX	
31	PA10 **	I/O	USART1_RX	
34	PA13	I/O	SYS_SWDIO	
35	PF6 *	I/O	GPIO_Output	
36	PF7 *	I/O	GPIO_Output	
37	PA14	I/O	SYS_SWCLK	
38	PA15 **	I/O	I2S1_WS	
39	PB3 **	I/O	I2S1_CK	
41	PB5 **	I/O	I2S1_SD	
42	PB6	I/O	I2C1_SCL	
43	PB7	I/O	I2C1_SDA	
44	BOOT0	Boot		

Pin Number LQFP48	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
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

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

4. Clock Tree Configuration
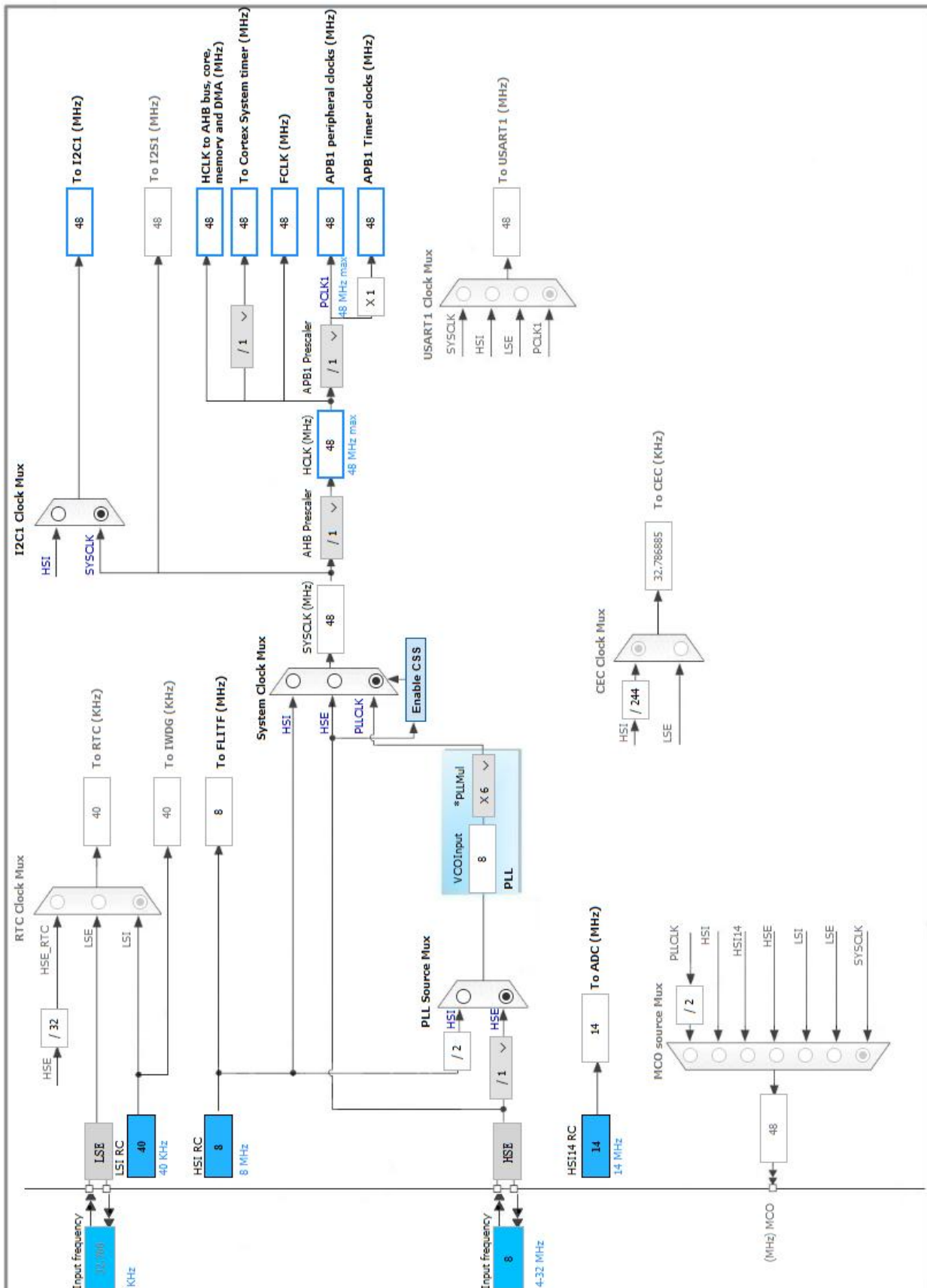
5. IPs and Middleware Configuration

5.1. ADC
mode: IN7

5.1.1. Parameter Settings:

ADC_Settings:

Clock Prescaler	Asynchronous clock mode
Resolution	ADC 12-bit resolution
Data Alignment	Right alignment
Scan Conversion Mode	Forward
Continuous Conversion Mode	Disabled
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	Disabled
End Of Conversion Selection	End of single conversion
Overrun behaviour	Overrun data preserved
Low Power Auto Wait	Disabled
Low Power Auto Power Off	Disabled

ADC_Regular_ConversionMode:

Sampling Time	1.5 Cycles
External Trigger Conversion Edge	None

WatchDog:

Enable Analog WatchDog Mode	false

5.2. I2C1
I2C: I2C

5.2.1. Parameter Settings:

Timing configuration:

I2C Speed Mode	Standard Mode
I2C Speed Frequency (KHz)	100
Rise Time (ns)	0
Fall Time (ns)	0
Coefficient of Digital Filter	0
Analog Filter	Enabled

Timing	**0x20303E5D ***

Slave Features:

Clock No Stretch Mode	Disabled
General Call Address Detection	Disabled
Primary Address Length selection	7-bit
Dual Address Acknowledged	Disabled
Primary slave address	0

5.3. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator
Low Speed Clock (LSE) : Crystal/Ceramic Resonator

5.3.1. Parameter Settings:

System Parameters:

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

RCC Parameters:

HSI14 Calibration Value	16
HSE Startup Timout Value (ms)	100
LSE Startup Timout Value (ms)	5000

5.4. SYS

mode: Debug Serial Wire
Timebase Source: SysTick

5.5. USART2

Mode: Single Wire (Half-Duplex)

5.5.1. Parameter Settings:

Basic Parameters:

Baud Rate	38400

Word Length	8 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples
Single Sample	Disable

Advanced Features:

TX Pin Active Level Inversion	Disable
RX Pin Active Level Inversion	Disable
Data Inversion	Disable
TX and RX Pins Swapping	Disable
Overrun	Enable
DMA on RX Error	Enable
MSB First	Disable

* User modified value

6. System Configuration

6.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
ADC	PA7	ADC_IN7	Analog mode	No pull-up and no pull-down	n/a	
I2C1	PB6	I2C1_SCL	Alternate Function Open Drain	Pull-up	**High ***	
	PB7	I2C1_SDA	Alternate Function Open Drain	Pull-up	**High ***	
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	
	PF0-OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PF1-OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
SYS	PA13	SYS_SWDIO	n/a	n/a	n/a	
	PA14	SYS_SWCLK	n/a	n/a	n/a	
USART2	PA2	USART2_TX	Alternate Function Open Drain	Pull-up	**High ***	
Single Mapped Signals	PA3	USART2_RX	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
	PB13	SPI2_SCK	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
	PB14	SPI2_MISO	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
	PB15	SPI2_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
	PA9	USART1_TX	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
	PA10	USART1_RX	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
	PA15	I2S1_WS	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PB3	I2S1_CK	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PB5	I2S1_SD	Alternate Function Push Pull	No pull-up and no pull-down	Low	
GPIO	PC13	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PA6	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PB0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB11	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PF6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PF7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	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

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
System service call via SWI instruction	true	0	0
Pendable request for system service	true	0	0
System tick timer	true	0	0
PVD interrupt through EXTI Line16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC and COMP interrupts (COMP interrupts through EXTI lines 21 and 22)	unused		
I2C1 event global interrupt / I2C1 wake-up interrupt through EXTI line 23	unused		
USART2 global interrupt	unused		

* User modified value

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F0
Line	STM32F0x1
MCU	STM32F051C8Tx
Datasheet	022265_Rev6

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	WifiClock
Project Folder	H:\360\Program\STM8_32\MySTM32F0\WifiClock
Toolchain / IDE	EWARM
Firmware Package Name and Version	STM32Cube FW_F0 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