1. Description

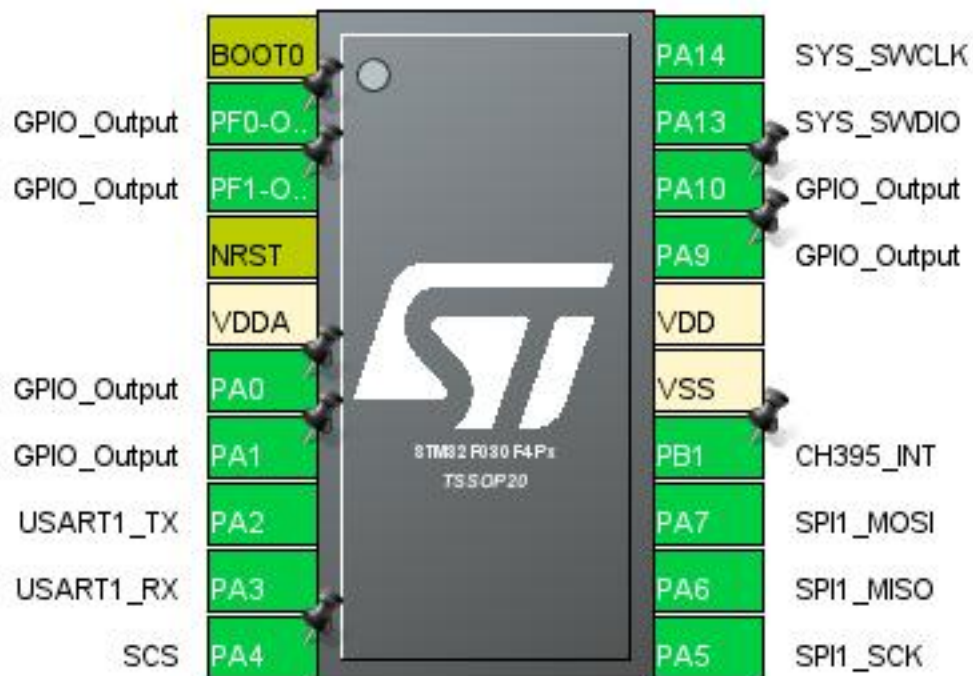## 1.1. Project

Project Name	Antenna Switch 6x2
Board Name	custom
Generated with:	STM32CubeMX 5.2.0
Date	09/27/2019

1.2. MCU

MCU Series	STM32F0
MCU Line	STM32F0x0 Value Line
MCU name	STM32F030F4Px
MCU Package	TSSOP20
MCU Pin number	20

2. Pinout Configuration

3. Pins Configuration

Pin Number TSSOP20	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	BOOT0	Boot		
2	PF0-OSC_IN *	I/O	GPIO_Output	
3	PF1-OSC_OUT *	I/O	GPIO_Output	
4	NRST	Reset		
5	VDDA	Power		
6	PA0 *	I/O	GPIO_Output	
7	PA1 *	I/O	GPIO_Output	
8	PA2	I/O	USART1_TX	
9	PA3	I/O	USART1_RX	
10	PA4 *	I/O	GPIO_Output	SCS
11	PA5	I/O	SPI1_SCK	
12	PA6	I/O	SPI1_MISO	
13	PA7	I/O	SPI1_MOSI	
14	PB1	I/O	GPIO_EXTI1	CH395_INT
15	VSS	Power		
16	VDD	Power		
17	PA9 *	I/O	GPIO_Output	
18	PA10 *	I/O	GPIO_Output	
19	PA13	I/O	SYS_SWDIO	
20	PA14	I/O	SYS_SWCLK	

* The pin is affected with an I/O function

4. Clock Tree Configuration

5. Software Project

5.1. Project Settings

Name	Value
Project Name	Antenna Switch 6x2
Project Folder	C:\Users\Zening\OneDrive\RADIO\Projects\6x2_Antenna_switch\MCU
Toolchain / IDE	STM32CubeIDE
Firmware Package Name and Version	STM32Cube FW_F0 V1.10.0

5.2. Code Generation Settings

Name	Value
STM32Cube Firmware Library Package	Copy only the necessary library files
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

6. Power Consumption Calculator report

6.1. Microcontroller Selection

Series	STM32F0
Line	STM32F0x0 Value Line
MCU	STM32F030F4Px
Datasheet	024849_Rev2

6.2. Parameter Selection

Temperature	25
Vdd	3.6

7. IPs and Middleware Configuration
7.1. RCC
7.1.1. 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

7.2. SPI1
Mode: Full-Duplex Master
7.2.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	**8 Bits ***
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	**4.0 MBits/s ***
Clock Polarity (CPOL)	**High ***
Clock Phase (CPHA)	**2 Edge ***

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

7.3. SYS
mode: Debug Serial Wire
Timebase Source: SysTick

7.4. USART1

Mode: Asynchronous

7.4.1. Parameter Settings:

Basic Parameters:

Baud Rate	**9600 ***
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:

Auto Baudrate	Disable
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

8. System Configuration

8.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
SPI1	PA5	SPI1_SCK	Alternate Function Push Pull	**Pull-up ***	**High ***	
	PA6	SPI1_MISO	Alternate Function Push Pull	**Pull-up ***	**High ***	
	PA7	SPI1_MOSI	Alternate Function Push Pull	**Pull-up ***	**High ***	
SYS	PA13	SYS_SWDIO	n/a	n/a	n/a	
	PA14	SYS_SWCLK	n/a	n/a	n/a	
USART1	PA2	USART1_TX	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
	PA3	USART1_RX	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
GPIO	PF0-OSC_IN	GPIO_Output	Output Push Pull	**Pull-down ***	Low	
	PF1-OSC_OUT	GPIO_Output	Output Push Pull	**Pull-down ***	Low	
	PA0	GPIO_Output	Output Push Pull	**Pull-down ***	Low	
	PA1	GPIO_Output	Output Push Pull	**Pull-down ***	Low	
	PA4	GPIO_Output	Output Push Pull	**Pull-up ***	Low	SCS
	PB1	GPIO_EXTI1	**External Interrupt Mode with Falling edge trigger detection**	**Pull-up ***	n/a	CH395_INT
	PA9	GPIO_Output	Output Push Pull	**Pull-down ***	Low	
	PA10	GPIO_Output	Output Push Pull	**Pull-down ***	Low	

8.2. DMA configuration

DMA request	Stream	Direction	Priority
SPI1_TX	DMA1_Channel3	Memory To Peripheral	Low
SPI1_RX	DMA1_Channel2	Peripheral To Memory	Low

SPI1_TX: DMA1_Channel3 DMA request Settings:

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

SPI1_RX: DMA1_Channel2 DMA request Settings:

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

8.3. 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
EXTI line 0 and 1 interrupts	true	0	0
DMA1 channel 2 and 3 interrupts	true	0	0
Flash global interrupt	unused		
RCC global interrupt	unused		
SPI1 global interrupt	unused		
USART1 global interrupt	unused		

* User modified value

9. Software Pack Report