1. Description

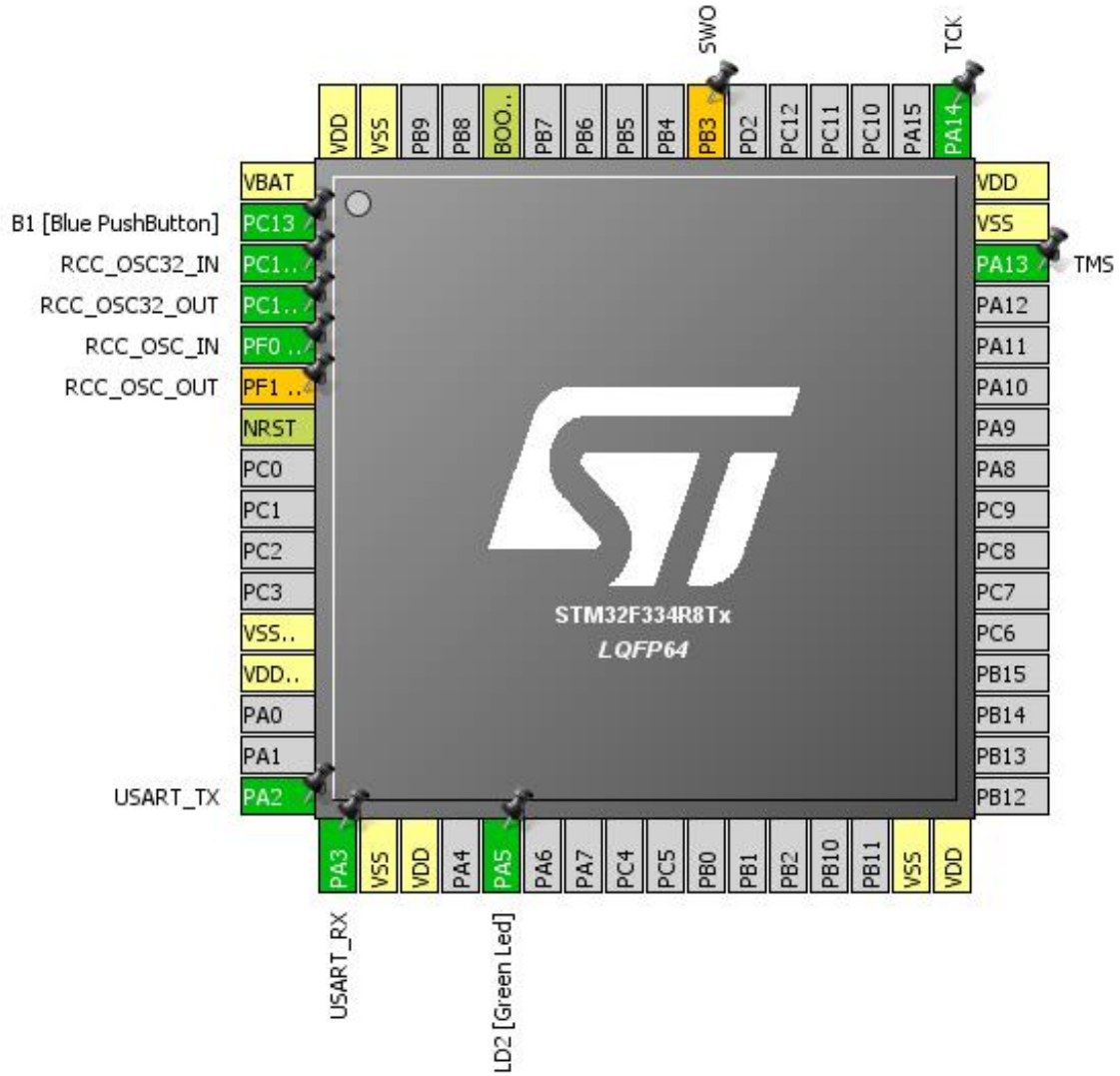
1.1. Project

Project Name	ADC_SRAM_TEMP
Board Name	NUCLEO-F334R8
Generated with:	STM32CubeMX 4.24.0
Date	08/03/2020

1.2. MCU

MCU Series	STM32F3
MCU Line	STM32F334
MCU name	STM32F334R8Tx
MCU Package	LQFP64
MCU Pin number	64

2. Pinout Configuration



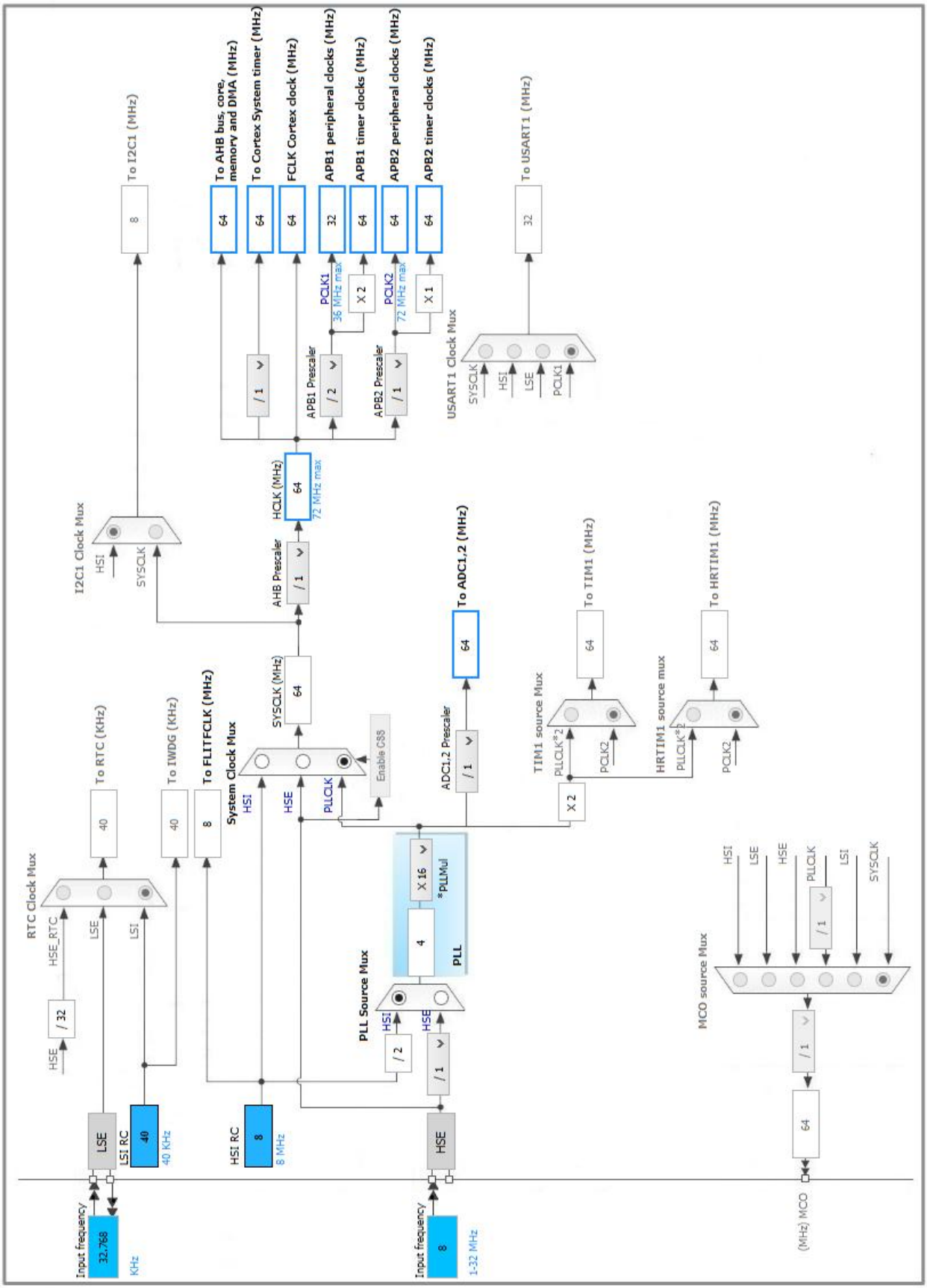
3. Pins Configuration

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
2	PC13	I/O	GPIO_EXTI13	B1 [Blue PushButton]
3	PC14 / OSC32_IN	I/O	RCC_OSC32_IN	
4	PC15 / OSC32_OUT	I/O	RCC_OSC32_OUT	RCC_OSC32_OUT
5	PF0 / OSC_IN	I/O	RCC_OSC_IN	
6	PF1 / OSC_OUT *	I/O	RCC_OSC_OUT	
7	NRST	Reset		
12	VSSA/VREF-	Power		
13	VDDA/VREF+	Power		
16	PA2	I/O	USART2_TX	USART_TX
17	PA3	I/O	USART2_RX	USART_RX
18	VSS	Power		
19	VDD	Power		
21	PA5 **	I/O	GPIO_Output	LD2 [Green Led]
31	VSS	Power		
32	VDD	Power		
46	PA13	I/O	SYS_JTMS-SWDIO	TMS
47	VSS	Power		
48	VDD	Power		
49	PA14	I/O	SYS_JTCK-SWCLK	TCK
55	PB3 *	I/O	SYS_JTDO-TRACESWO	SWO
60	BOOT0	Boot		
63	VSS	Power		
64	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. ADC1

mode: Temperature Sensor Channel

5.1.1. Parameter Settings:

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

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

ADC_Regular_ConversionMode:

Enable Regular Conversions	Enable
Number Of Conversion	**16 ***
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None
Rank	1
Channel	Channel Temperature Sensor
Sampling Time	1.5 Cycles
Offset Number	No offset
Offset	0
Rank	**2 ***
Channel	Channel Temperature Sensor
Sampling Time	1.5 Cycles
Offset Number	No offset
Offset	0
Rank	**3 ***
Channel	Channel Temperature Sensor
Sampling Time	1.5 Cycles
Offset Number	No offset

Offset	0
Rank	**4 ***
Channel	Channel Temperature Sensor
Sampling Time	1.5 Cycles
Offset Number	No offset
Offset	0
Rank	**5 ***
Channel	Channel Temperature Sensor
Sampling Time	1.5 Cycles
Offset Number	No offset
Offset	0
Rank	**6 ***
Channel	Channel Temperature Sensor
Sampling Time	1.5 Cycles
Offset Number	No offset
Offset	0
Rank	**7 ***
Channel	Channel Temperature Sensor
Sampling Time	1.5 Cycles
Offset Number	No offset
Offset	0
Rank	**8 ***
Channel	Channel Temperature Sensor
Sampling Time	1.5 Cycles
Offset Number	No offset
Offset	0
Rank	**9 ***
Channel	Channel Temperature Sensor
Sampling Time	1.5 Cycles
Offset Number	No offset
Offset	0
Rank	**10 ***
Channel	Channel Temperature Sensor
Sampling Time	1.5 Cycles
Offset Number	No offset
Offset	0
Rank	**11 ***
Channel	Channel Temperature Sensor
Sampling Time	1.5 Cycles
Offset Number	No offset
Offset	0

Rank	**12 ***
Channel	Channel Temperature Sensor
Sampling Time	1.5 Cycles
Offset Number	No offset
Offset	0
Rank	**13 ***
Channel	Channel Temperature Sensor
Sampling Time	1.5 Cycles
Offset Number	No offset
Offset	0
Rank	**14 ***
Channel	Channel Temperature Sensor
Sampling Time	1.5 Cycles
Offset Number	No offset
Offset	0
Rank	**15 ***
Channel	Channel Temperature Sensor
Sampling Time	1.5 Cycles
Offset Number	No offset
Offset	0
Rank	**16 ***
Channel	Channel Temperature Sensor
Sampling Time	1.5 Cycles
Offset Number	No offset
Offset	0

ADC_Injected_ConversionMode:

Enable Injected Conversions	Enable
Number Of Conversions	0

Analog Watchdog 1:

Enable Analog WatchDog1 Mode	false

Analog Watchdog 2:

Enable Analog WatchDog2 Mode	false

Analog Watchdog 3:

Enable Analog WatchDog3 Mode	false

5.2. RCC

High Speed Clock (HSE): BYPASS Clock Source

Low Speed Clock (LSE) : Crystal/Ceramic Resonator

5.2.1. Parameter Settings:

System Parameters:

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

RCC Parameters:

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

5.3. SYS

Debug: Serial Wire

Timebase Source: SysTick

5.4. USART2

Mode: Asynchronous

5.4.1. Parameter Settings:

Basic Parameters:

Baud Rate	38400
Word Length	7 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
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	RCC_OSC32_OUT
	PF0 / OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	TMS
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	TCK
USART2	PA2	USART2_TX	Alternate Function Push Pull	No pull up pull down	**High ***	USART_TX
	PA3	USART2_RX	Alternate Function Push Pull	No pull up pull down	**High ***	USART_RX
Single Mapped Signals	PF1 / OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
	PB3	SYS_JTDO-TRACESWO	n/a	n/a	n/a	SWO
GPIO	PC13	GPIO_EXTI13	**External Interrupt Mode with Falling edge trigger detection**	No pull up pull down	n/a	B1 [Blue PushButton]
	PA5	GPIO_Output	Output Push Pull	No pull up pull down	Low	LD2 [Green Led]

6.2. DMA configuration

DMA request	Stream	Direction	Priority
ADC1	DMA1_Channel1	Peripheral To Memory	Low

ADC1: DMA1_Channel1 DMA request Settings:

Mode:	Normal
Peripheral Increment:	Disable
Memory Increment:	**Enable ***
Peripheral Data Width:	Half Word
Memory Data Width:	Half Word

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
DMA1 channel1 global interrupt	true	0	0
EXTI line[15:10] interrupts	true	0	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1 and ADC2 interrupts	unused		
USART2 global interrupt / USART2 wake-up interrupt through EXT line 26	unused		
Floating point unit interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F3
Line	STM32F334
MCU	STM32F334R8Tx
Datasheet	025409_Rev6

7.2. Parameter Selection

Temperature	25
Vdd	3.6

8. Software Project

8.1. Project Settings

Name	Value
Project Name	ADC_SRAM_TEMP
Project Folder	C:\Users\-_Alex_-\Desktop\DMA course\Workspace\ADC_SRAM_TEMP
Toolchain / IDE	SW4STM32
Firmware Package Name and Version	STM32Cube FW_F3 V1.9.1

8.2. 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

9. Software Pack Report