1. Description

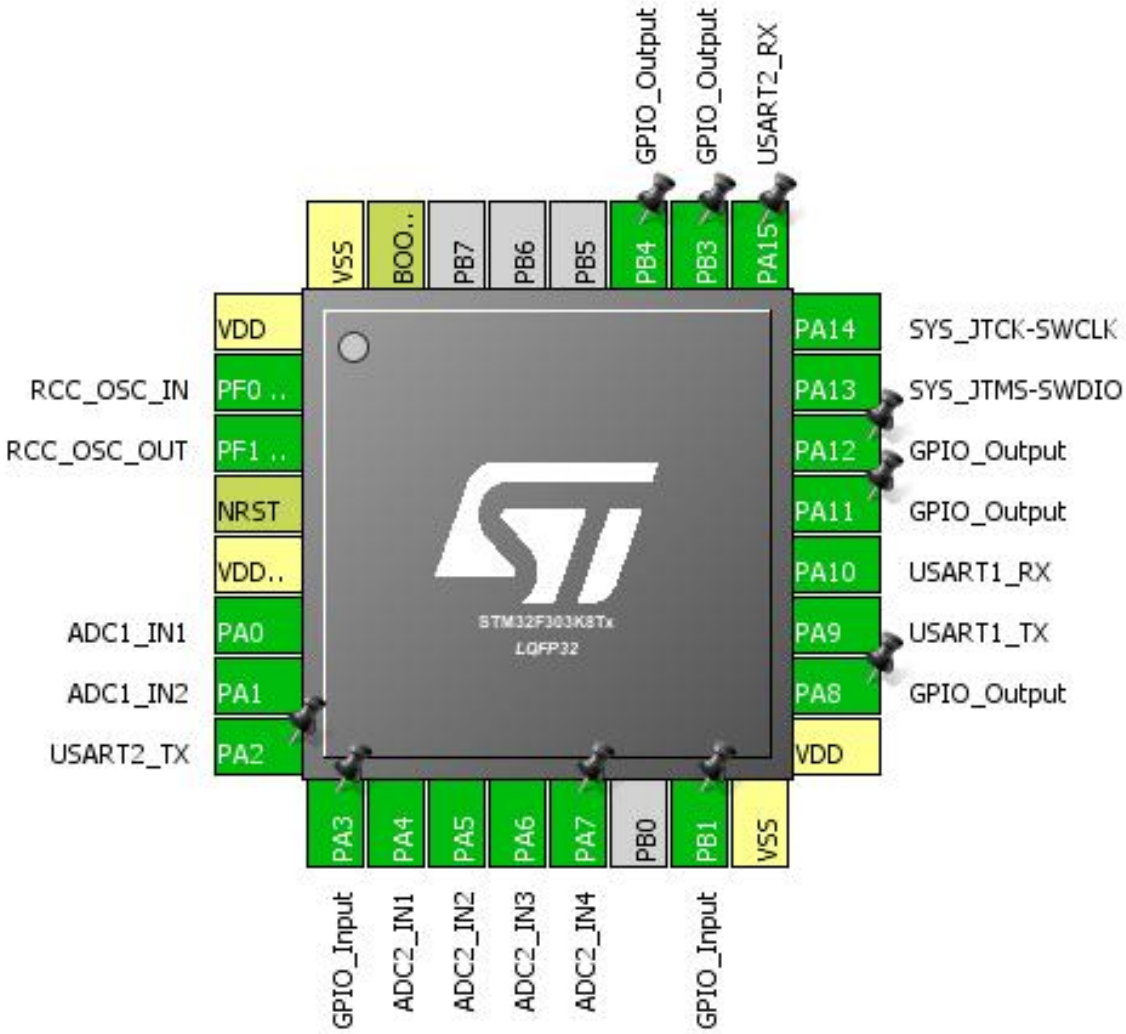
1.1. Project

Project Name	F303K_arm_controller
Board Name	F303K_arm_controller
Generated with:	STM32CubeMX 4.23.0
Date	03/23/2018

1.2. MCU

MCU Series	STM32F3
MCU Line	STM32F303
MCU name	STM32F303K8Tx
MCU Package	LQFP32
MCU Pin number	32

2. Pinout Configuration

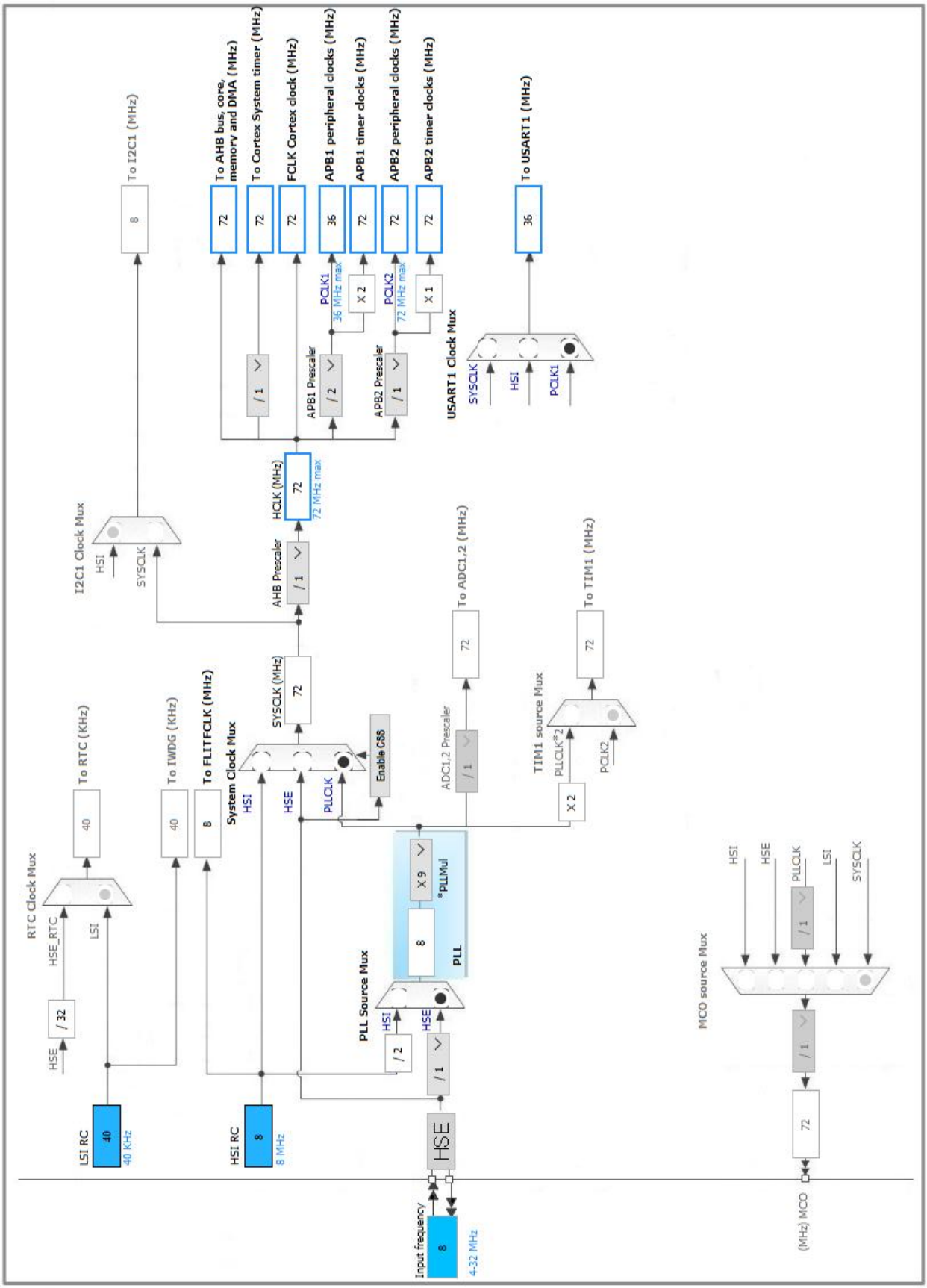


3. Pins Configuration

Pin Number LQFP32	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VDD	Power		
2	PF0 / OSC_IN	I/O	RCC_OSC_IN	
3	PF1 / OSC_OUT	I/O	RCC_OSC_OUT	
4	NRST	Reset		
5	VDDA/VREF+	Power		
6	PA0	I/O	ADC1_IN1	
7	PA1	I/O	ADC1_IN2	
8	PA2	I/O	USART2_TX	
9	PA3 *	I/O	GPIO_Input	
10	PA4	I/O	ADC2_IN1	
11	PA5	I/O	ADC2_IN2	
12	PA6	I/O	ADC2_IN3	
13	PA7	I/O	ADC2_IN4	
15	PB1 *	I/O	GPIO_Input	
16	VSS	Power		
17	VDD	Power		
18	PA8 *	I/O	GPIO_Output	
19	PA9	I/O	USART1_TX	
20	PA10	I/O	USART1_RX	
21	PA11 *	I/O	GPIO_Output	
22	PA12 *	I/O	GPIO_Output	
23	PA13	I/O	SYS_JTMS-SWDIO	
24	PA14	I/O	SYS_JTCK-SWCLK	
25	PA15	I/O	USART2_RX	
26	PB3 *	I/O	GPIO_Output	
27	PB4 *	I/O	GPIO_Output	
31	BOOT0	Boot		
32	VSS	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. ADC1

IN1: IN1 Single-ended

IN2: IN2 Single-ended

5.1.1. Parameter Settings:

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

Clock Prescaler	**Synchronous clock mode divided by 4 ***
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 preserved ***
Low Power Auto Wait	Disabled

ADC_Regular_ConversionMode:

Enable Regular Conversions	Enable
Number Of Conversion	**2 ***
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None
Rank	1
Channel	Channel 1
Sampling Time	**61.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**2 ***
Channel	**Channel 2 ***
Sampling Time	**61.5 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. ADC2

IN1: IN1 Single-ended

IN2: IN2 Single-ended

IN3: IN3 Single-ended

mode: IN4

5.2.1. Parameter Settings:

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

Clock Prescaler	**Synchronous clock mode divided by 4 ***
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 preserved ***
Low Power Auto Wait	Disabled

ADC_Regular_ConversionMode:

Enable Regular Conversions	Enable
Number Of Conversion	**4 ***
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None
Rank	1
Channel	Channel 1
Sampling Time	

	61.5 Cycles *
Offset Number	No offset
Offset	0
Rank	**2 ***
Channel	**Channel 2 ***
Sampling Time	**61.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**3 ***
Channel	**Channel 3 ***
Sampling Time	**61.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**4 ***
Channel	**Channel 4 ***
Sampling Time	**61.5 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

5.3. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

5.3.1. 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

5.4. SYS

Debug: Serial Wire

Timebase Source: SysTick

5.5. USART1

Mode: Asynchronous

5.5.1. Parameter Settings:

Basic Parameters:

Baud Rate	**19200 ***
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

5.6. USART2

Mode: Asynchronous

5.6.1. 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
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
ADC1	PA0	ADC1_IN1	Analog mode	No pull up pull down	n/a	
	PA1	ADC1_IN2	Analog mode	No pull up pull down	n/a	
ADC2	PA4	ADC2_IN1	Analog mode	No pull up pull down	n/a	
	PA5	ADC2_IN2	Analog mode	No pull up pull down	n/a	
	PA6	ADC2_IN3	Analog mode	No pull up pull down	n/a	
	PA7	ADC2_IN4	Analog mode	No pull up pull down	n/a	
RCC	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_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
USART1	PA9	USART1_TX	Alternate Function Push Pull	Pull up	**High ***	
	PA10	USART1_RX	Alternate Function Push Pull	Pull up	**High ***	
USART2	PA2	USART2_TX	Alternate Function Push Pull	Pull up	**High ***	
	PA15	USART2_RX	Alternate Function Push Pull	Pull up	**High ***	
GPIO	PA3	GPIO_Input	Input mode	No pull up pull down	n/a	
	PB1	GPIO_Input	Input mode	No pull up pull down	n/a	
	PA8	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PA11	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PA12	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PB3	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PB4	GPIO_Output	Output Push Pull	No pull up pull down	Low	

6.2. DMA configuration

DMA request	Stream	Direction	Priority
ADC2	DMA1_Channel2	Peripheral To Memory	Low
USART1_TX	DMA1_Channel4	Memory To Peripheral	Low
ADC1	DMA1_Channel1	Peripheral To Memory	**Medium ***

ADC2: DMA1_Channel2 DMA request Settings:

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

USART1_TX: DMA1_Channel4 DMA request Settings:

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

ADC1: DMA1_Channel1 DMA request Settings:

Mode:	**Circular ***
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	1	0
DMA1 channel2 global interrupt	true	2	0
DMA1 channel4 global interrupt	true	3	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1 and ADC2 interrupts	unused		
USART1 global interrupt / USART1 wake-up interrupt through EXT line 25	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	STM32F303
MCU	STM32F303K8Tx
Datasheet	025083_Rev5

7.2. Parameter Selection

Temperature	25
Vdd	3.6

8. Software Project

8.1. Project Settings

Name	Value
Project Name	F303K_arm_controller
Project Folder	C:\Users\ryouma\OneDrive\\18\\F303K_arm_controller
Toolchain / IDE	TrueSTUDIO
Firmware Package Name and Version	STM32Cube FW_F3 V1.9.0

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	Yes
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