1. Description

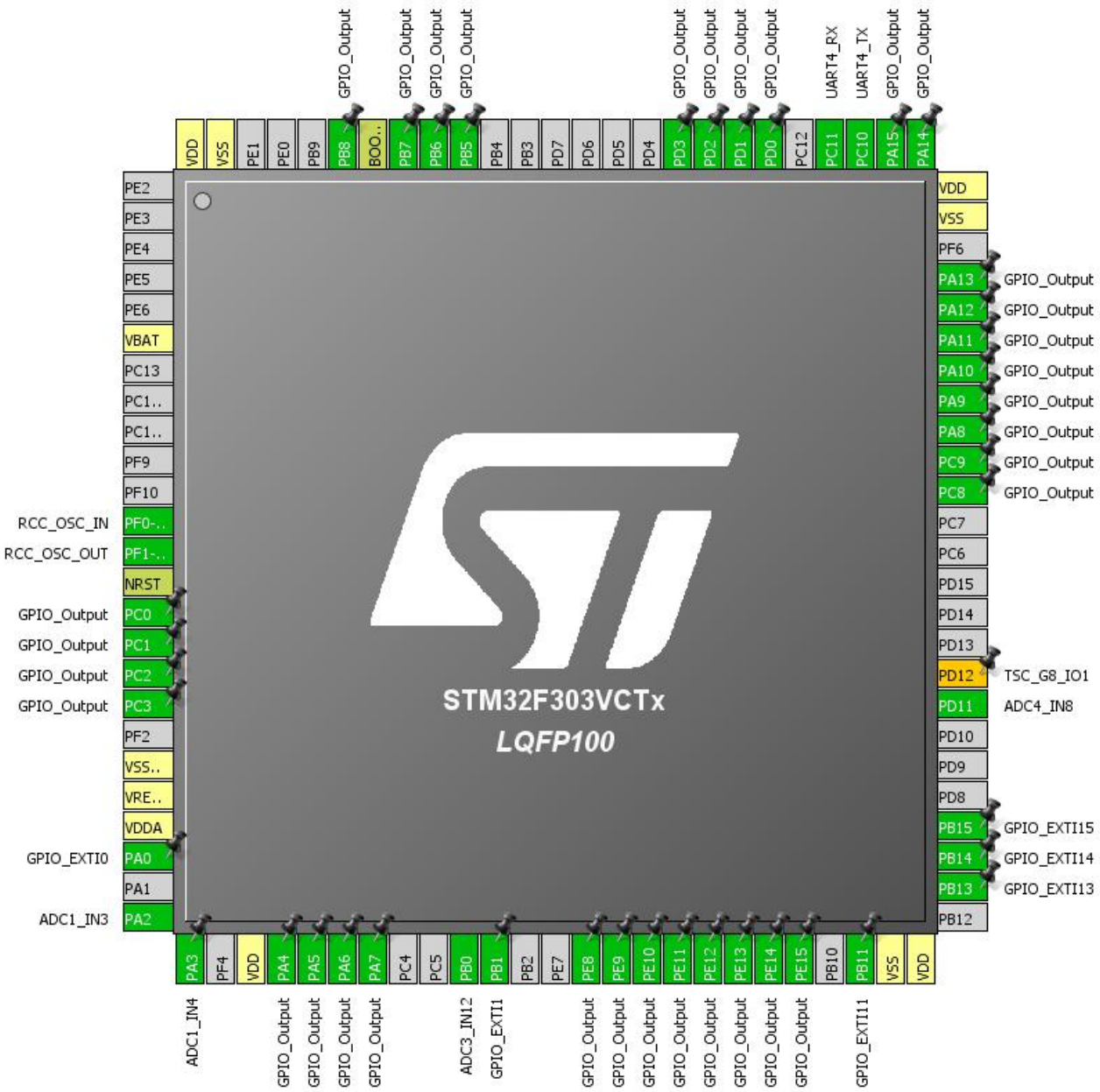
1.1. Project

Project Name	project3
Board Name	STM32F3DISCOVERY
Generated with:	STM32CubeMX 4.27.0
Date	02/03/2019

1.2. MCU

MCU Series	STM32F3
MCU Line	STM32F303
MCU name	STM32F303VCTx
MCU Package	LQFP100
MCU Pin number	100

2. Pinout Configuration



3. Pins Configuration

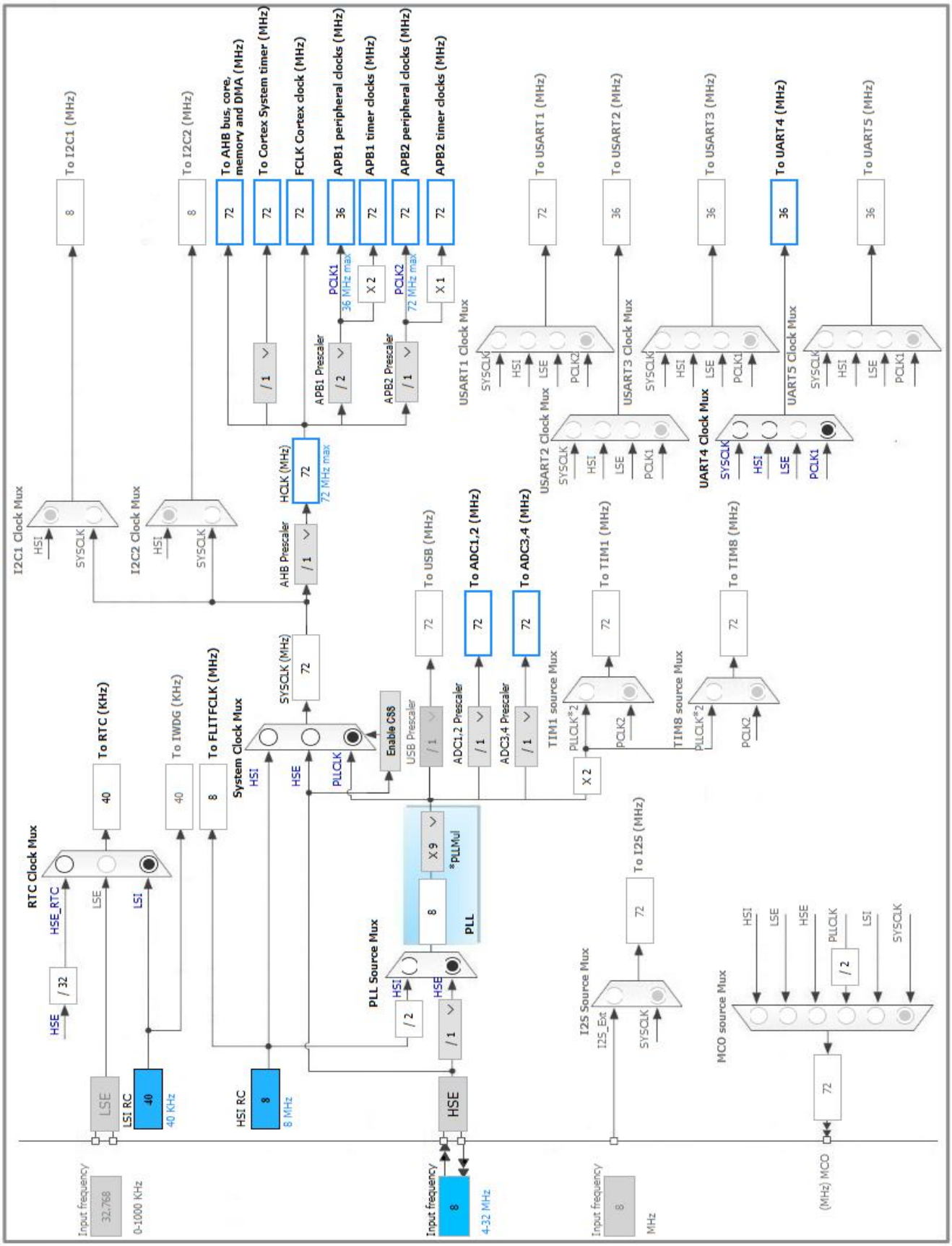
Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
6	VBAT	Power		
12	PF0-OSC_IN	I/O	RCC_OSC_IN	
13	PF1-OSC_OUT	I/O	RCC_OSC_OUT	
14	NRST	Reset		
15	PC0 *	I/O	GPIO_Output	
16	PC1 *	I/O	GPIO_Output	
17	PC2 *	I/O	GPIO_Output	
18	PC3 *	I/O	GPIO_Output	
20	VSSA/VREF-	Power		
21	VREF+	Power		
22	VDDA	Power		
23	PA0	I/O	GPIO_EXTI0	
25	PA2	I/O	ADC1_IN3	
26	PA3	I/O	ADC1_IN4	
28	VDD	Power		
29	PA4 *	I/O	GPIO_Output	
30	PA5 *	I/O	GPIO_Output	
31	PA6 *	I/O	GPIO_Output	
32	PA7 *	I/O	GPIO_Output	
35	PB0	I/O	ADC3_IN12	
36	PB1	I/O	GPIO_EXTI1	
39	PE8 *	I/O	GPIO_Output	
40	PE9 *	I/O	GPIO_Output	
41	PE10 *	I/O	GPIO_Output	
42	PE11 *	I/O	GPIO_Output	
43	PE12 *	I/O	GPIO_Output	
44	PE13 *	I/O	GPIO_Output	
45	PE14 *	I/O	GPIO_Output	
46	PE15 *	I/O	GPIO_Output	
48	PB11	I/O	GPIO_EXTI11	
49	VSS	Power		
50	VDD	Power		
52	PB13	I/O	GPIO_EXTI13	
53	PB14	I/O	GPIO_EXTI14	
54	PB15	I/O	GPIO_EXTI15	
58	PD11	I/O	ADC4_IN8	

Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
59	PD12 **	I/O	TSC_G8_IO1	
65	PC8 *	I/O	GPIO_Output	
66	PC9 *	I/O	GPIO_Output	
67	PA8 *	I/O	GPIO_Output	
68	PA9 *	I/O	GPIO_Output	
69	PA10 *	I/O	GPIO_Output	
70	PA11 *	I/O	GPIO_Output	
71	PA12 *	I/O	GPIO_Output	
72	PA13 *	I/O	GPIO_Output	
74	VSS	Power		
75	VDD	Power		
76	PA14 *	I/O	GPIO_Output	
77	PA15 *	I/O	GPIO_Output	
78	PC10	I/O	UART4_TX	
79	PC11	I/O	UART4_RX	
81	PD0 *	I/O	GPIO_Output	
82	PD1 *	I/O	GPIO_Output	
83	PD2 *	I/O	GPIO_Output	
84	PD3 *	I/O	GPIO_Output	
91	PB5 *	I/O	GPIO_Output	
92	PB6 *	I/O	GPIO_Output	
93	PB7 *	I/O	GPIO_Output	
94	BOOT0	Boot		
95	PB8 *	I/O	GPIO_Output	
99	VSS	Power		
100	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

IN3: IN3 Single-ended

IN4: IN4 Single-ended

5.1.1. Parameter Settings:

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

Clock Prescaler	ADC Asynchronous clock mode
Resolution	**ADC 6-bit resolution ***
Data Alignment	Right alignment
Scan Conversion Mode	Disabled
Continuous Conversion Mode	Disabled
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	Disabled
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	1
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None
Rank	1
Channel	**Channel 4 ***
Sampling Time	**601.5 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. ADC3

IN12: IN12 Single-ended

5.2.1. 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	Disabled
Continuous Conversion Mode	Disabled
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	Disabled
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	1
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None
Rank	1
Channel	Channel 12
Sampling Time	**601.5 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. ADC4

IN8: IN8 Single-ended

5.3.1. 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	Disabled
Continuous Conversion Mode	Disabled
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	Disabled
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	1
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None
Rank	1
Channel	Channel 8
Sampling Time	**601.5 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

5.4. CRC

mode: Activated

5.4.1. Parameter Settings:

Basic Parameters:

Default Polynomial State	Enable
Default Init Value State	Enable

Advanced Parameters:

Input Data Inversion Mode	None
Output Data Inversion Mode	Disable
Input Data Format	Bytes

5.5. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

5.5.1. 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

5.6. RTC

mode: Activate Clock Source

mode: Activate Calendar

5.6.1. Parameter Settings:

General:

Hour Format	Hourformat 24
Asynchronous Predivider value	127
Synchronous Predivider value	255

Calendar Time:

Data Format	BCD data format

Hours	0
Minutes	0
Seconds	0
Day Light Saving: value of hour adjustment	Daylightsaving None
Store Operation	Storeoperation Reset

Calendar Date:

Week Day	Monday
Month	January
Date	1
Year	0

5.7. SYS

Timebase Source: SysTick

5.8. TIM6

mode: Activated

5.8.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**35999 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**1999 ***
auto-reload preload	Disable

Trigger Output (TRGO) Parameters:

Trigger Event Selection	Reset (UG bit from TIMx_EGR)

5.9. TIM7

mode: Activated

5.9.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**12499 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**719 ***
auto-reload preload	Disable

Trigger Output (TRGO) Parameters:

Trigger Event Selection	Reset (UG bit from TIMx_EGR)

5.10. TIM16

mode: Activated

5.10.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**36999 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**7 ***
Internal Clock Division (CKD)	No Division
Repetition Counter (RCR - 8 bits value)	0
auto-reload preload	Disable

5.11. UART4

Mode: Asynchronous

5.11.1. 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	PA2	ADC1_IN3	Analog mode	No pull up pull down	n/a	
	PA3	ADC1_IN4	Analog mode	No pull up pull down	n/a	
ADC3	PB0	ADC3_IN12	Analog mode	No pull up pull down	n/a	
ADC4	PD11	ADC4_IN8	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	
UART4	PC10	UART4_TX	Alternate Function Push Pull	No pull up pull down	**High ***	
	PC11	UART4_RX	Alternate Function Push Pull	No pull up pull down	**High ***	
Single Mapped Signals	PD12	TSC_G8_IO1	Alternate Function Push Pull	No pull up pull down	Low	
GPIO	PC0	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PC1	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PC2	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PC3	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PA0	GPIO_EXTI0	External Interrupt Mode with Rising edge trigger detection	**Pull down ***	n/a	
	PA4	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PA5	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PA6	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PA7	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PB1	GPIO_EXTI1	External Interrupt Mode with Rising edge trigger detection	**Pull down ***	n/a	
	PE8	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PE9	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PE10	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PE11	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PE12	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PE13	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PE14	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PE15	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PB11	GPIO_EXTI11	External Interrupt Mode with Rising edge trigger detection	**Pull down ***	n/a	
	PB13	GPIO_EXTI13	External Interrupt Mode with Rising edge trigger detection	**Pull down ***	n/a	
	PB14	GPIO_EXTI14	External Interrupt Mode with	**Pull down ***	n/a	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
			Rising edge trigger detection			
	PB15	GPIO_EXTI15	External Interrupt Mode with Rising edge trigger detection	**Pull down ***	n/a	
	PC8	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PC9	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PA8	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PA9	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PA10	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	
	PA13	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PA14	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PA15	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PD0	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PD1	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PD2	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PD3	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PB5	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PB6	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PB7	GPIO_Output	Output Push Pull	No pull up pull down	Low	
	PB8	GPIO_Output	Output Push Pull	No pull up pull down	Low	

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
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
EXTI line0 interrupt	true	0	0
EXTI line1 interrupt	true	0	0
ADC1 and ADC2 interrupts	true	6	0
TIM1 update and TIM16 interrupts	true	4	0
EXTI line[15:10] interrupts	true	2	0
ADC3 global interrupt	true	4	0
UART4 global interrupt / UART4 wake-up interrupt through EXTI line 34	true	0	0
Timer 6 interrupt and DAC underrun interrupts	true	3	0
TIM7 global interrupt	true	1	0
PVD interrupt through EXTI line16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC4 interrupt	unused		
Floating point unit interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F3
Line	STM32F303
MCU	STM32F303VCTx
Datasheet	023353_Rev13

7.2. Parameter Selection

Temperature	25
Vdd	3.6

8. Software Project

8.1. Project Settings

Name	Value
Project Name	project3
Project Folder	D:\StudyingFiles\InProgress\MicroProcessore\PrjTA\FinalPhase2\finalProject_ph
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_F3 V1.10.0

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

9. Software Pack Report