1. Description

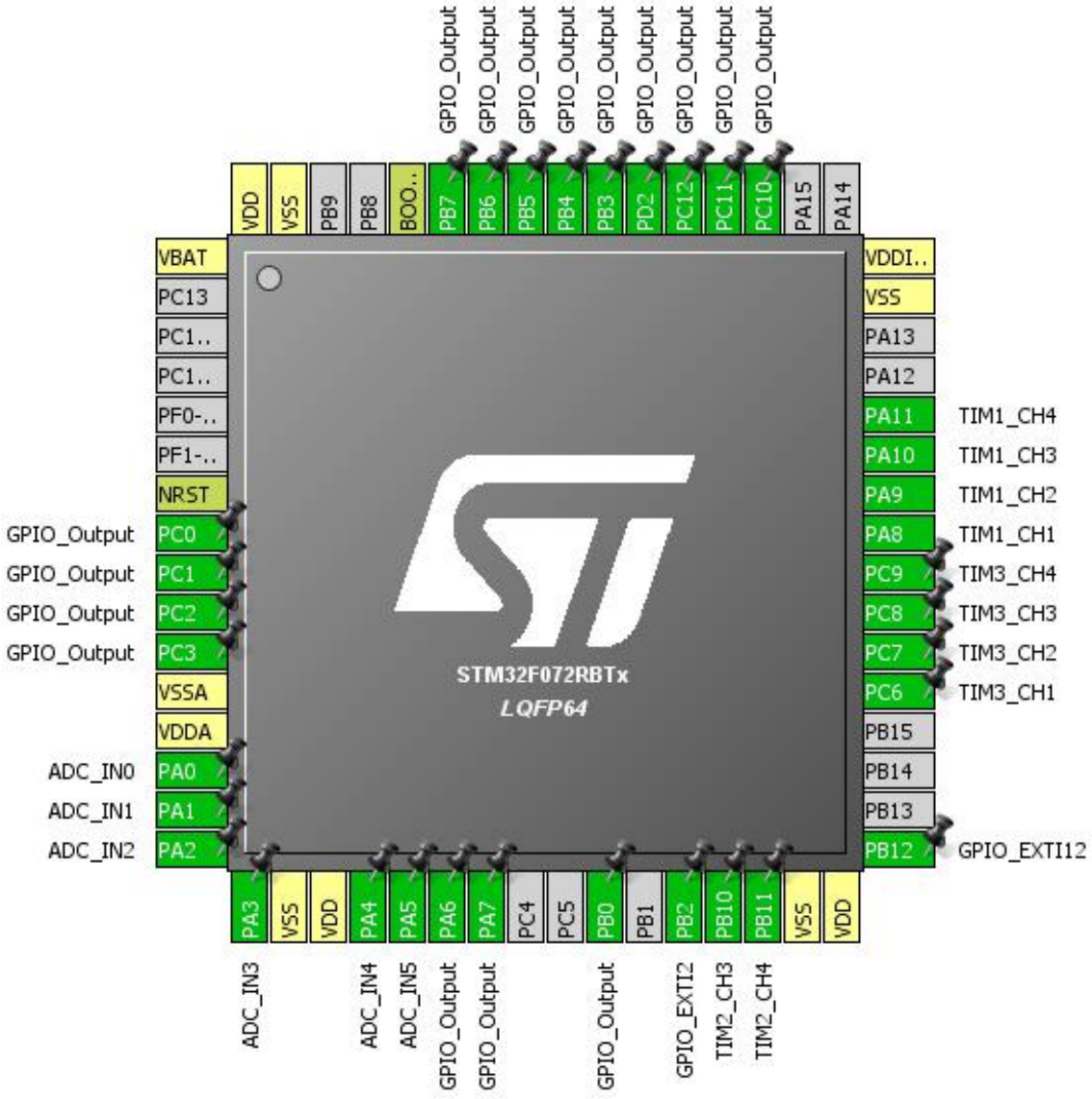
1.1. Project

Project Name	NewAutoCoffeeCode
Board Name	custom
Generated with:	STM32CubeMX 4.27.0
Date	10/23/2018

1.2. MCU

MCU Series	STM32F0
MCU Line	STM32F0x2
MCU name	STM32F072RBTx
MCU Package	LQFP64
MCU Pin number	64

2. Pinout Configuration



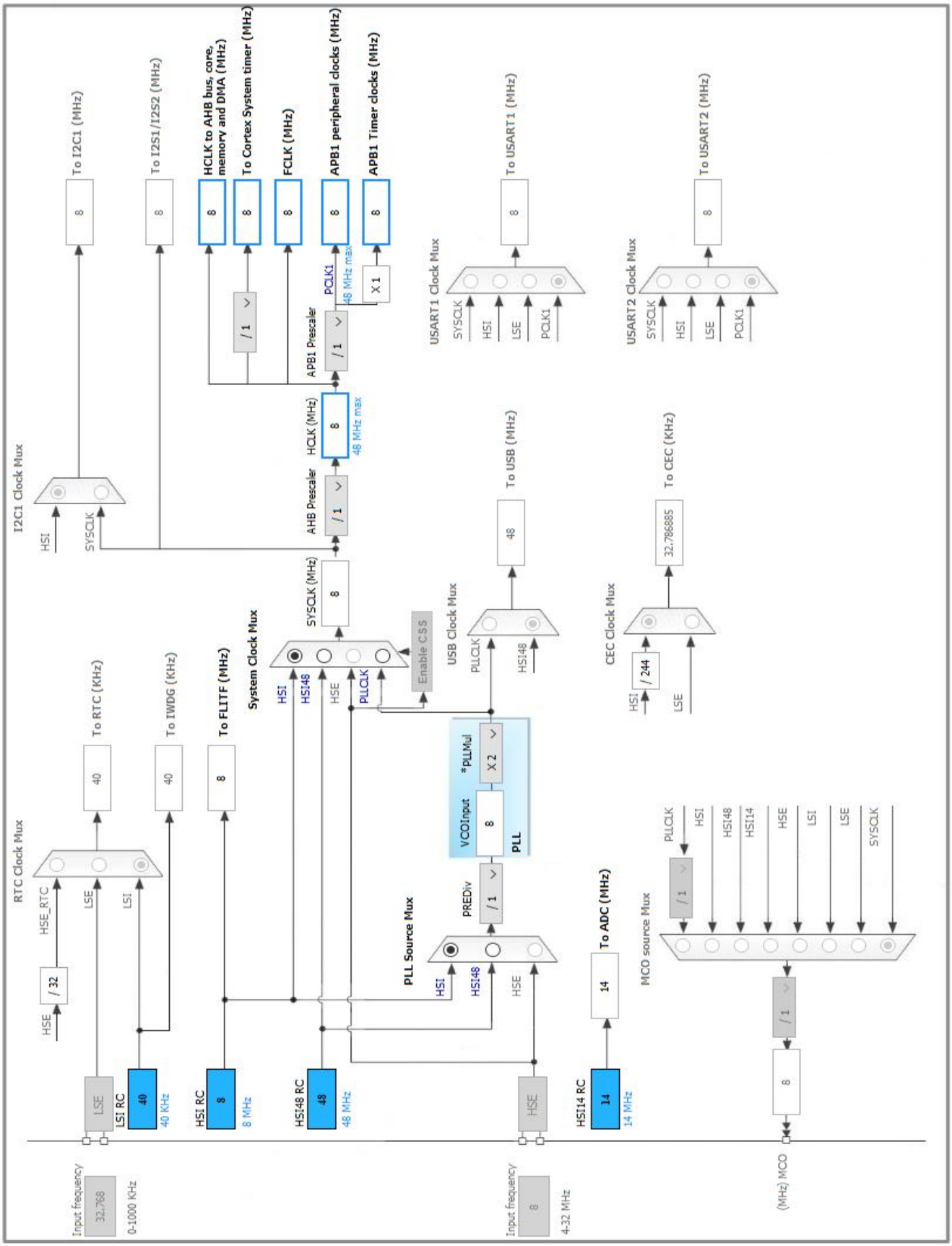
3. Pins Configuration

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
7	NRST	Reset		
8	PC0 *	I/O	GPIO_Output	
9	PC1 *	I/O	GPIO_Output	
10	PC2 *	I/O	GPIO_Output	
11	PC3 *	I/O	GPIO_Output	
12	VSSA	Power		
13	VDDA	Power		
14	PA0	I/O	ADC_IN0	
15	PA1	I/O	ADC_IN1	
16	PA2	I/O	ADC_IN2	
17	PA3	I/O	ADC_IN3	
18	VSS	Power		
19	VDD	Power		
20	PA4	I/O	ADC_IN4	
21	PA5	I/O	ADC_IN5	
22	PA6 *	I/O	GPIO_Output	
23	PA7 *	I/O	GPIO_Output	
26	PB0 *	I/O	GPIO_Output	
28	PB2	I/O	GPIO_EXTI2	
29	PB10	I/O	TIM2_CH3	
30	PB11	I/O	TIM2_CH4	
31	VSS	Power		
32	VDD	Power		
33	PB12	I/O	GPIO_EXTI12	
37	PC6	I/O	TIM3_CH1	
38	PC7	I/O	TIM3_CH2	
39	PC8	I/O	TIM3_CH3	
40	PC9	I/O	TIM3_CH4	
41	PA8	I/O	TIM1_CH1	
42	PA9	I/O	TIM1_CH2	
43	PA10	I/O	TIM1_CH3	
44	PA11	I/O	TIM1_CH4	
47	VSS	Power		
48	VDDIO2	Power		
51	PC10 *	I/O	GPIO_Output	

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
52	PC11 *	I/O	GPIO_Output	
53	PC12 *	I/O	GPIO_Output	
54	PD2 *	I/O	GPIO_Output	
55	PB3 *	I/O	GPIO_Output	
56	PB4 *	I/O	GPIO_Output	
57	PB5 *	I/O	GPIO_Output	
58	PB6 *	I/O	GPIO_Output	
59	PB7 *	I/O	GPIO_Output	
60	BOOT0	Boot		
63	VSS	Power		
64	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. ADC

mode: IN0

mode: IN1

mode: IN2

mode: IN3

mode: IN4

mode: IN5

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 Source	Regular Conversion launched by software
External Trigger Conversion Edge	None

WatchDog:

Enable Analog WatchDog Mode	false

5.2. SYS

Timebase Source: SysTick

5.3. TIM1

Clock Source : Internal Clock

Channel1: PWM Generation CH1

Channel2: PWM Generation CH2
Channel3: PWM Generation CH3
Channel4: PWM Generation CH4
5.3.1. Parameter Settings:

Counter Settings:

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

Trigger Output (TRGO) Parameters:

Master/Slave Mode (MSM bit)	Disable (Trigger input effect not delayed)
Trigger Event Selection	Reset (UG bit from TIMx_EGR)

Break And Dead Time management - BRK Configuration:

BRK State	Disable
BRK Polarity	High

Break And Dead Time management - Output Configuration:

Automatic Output State	Disable
Off State Selection for Run Mode (OSSR)	Disable
Off State Selection for Idle Mode (OSSI)	Disable
Lock Configuration	Off

Clear Input:

Clear Input Source	Disable

PWM Generation Channel 1:

Mode	PWM mode 1
Pulse (16 bits value)	0
Fast Mode	Disable
CH Polarity	High
CH Idle State	Reset

PWM Generation Channel 2:

Mode	PWM mode 1
Pulse (16 bits value)	0
Fast Mode	Disable
CH Polarity	High
CH Idle State	Reset

PWM Generation Channel 3:

Mode	PWM mode 1
Pulse (16 bits value)	0

Fast Mode	Disable
CH Polarity	High
CH Idle State	Reset

PWM Generation Channel 4:

Mode	PWM mode 1
Pulse (16 bits value)	0
Fast Mode	Disable
CH Polarity	High
CH Idle State	Reset

5.4. TIM2

Channel3: PWM Generation CH3

Channel4: PWM Generation CH4

5.4.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 32 bits value)	0
Internal Clock Division (CKD)	No Division
auto-reload preload	Disable

Trigger Output (TRGO) Parameters:

Master/Slave Mode (MSM bit)	Disable (Trigger input effect not delayed)
Trigger Event Selection	Reset (UG bit from TIMx_EGR)

Clear Input:

Clear Input Source	Disable

PWM Generation Channel 3:

Mode	PWM mode 1
Pulse (32 bits value)	0
Fast Mode	Disable
CH Polarity	High

PWM Generation Channel 4:

Mode	PWM mode 1
Pulse (32 bits value)	0
Fast Mode	Disable
CH Polarity	High

5.5. TIM3

Clock Source : Internal Clock

Channel1: PWM Generation CH1

Channel2: PWM Generation CH2

Channel3: PWM Generation CH3

Channel4: PWM Generation CH4

5.5.1. Parameter Settings:

Counter Settings:

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

Trigger Output (TRGO) Parameters:

Master/Slave Mode (MSM bit)	Disable (Trigger input effect not delayed)
Trigger Event Selection	Reset (UG bit from TIMx_EGR)

Clear Input:

Clear Input Source	Disable

PWM Generation Channel 1:

Mode	PWM mode 1
Pulse (16 bits value)	0
Fast Mode	Disable
CH Polarity	High

PWM Generation Channel 2:

Mode	PWM mode 1
Pulse (16 bits value)	0
Fast Mode	Disable
CH Polarity	High

PWM Generation Channel 3:

Mode	PWM mode 1
Pulse (16 bits value)	0
Fast Mode	Disable
CH Polarity	High

PWM Generation Channel 4:

Mode	PWM mode 1
Pulse (16 bits value)	0
Fast Mode	Disable
CH Polarity	High

*** 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	PA0	ADC_IN0	Analog mode	No pull-up and no pull-down	n/a	
	PA1	ADC_IN1	Analog mode	No pull-up and no pull-down	n/a	
	PA2	ADC_IN2	Analog mode	No pull-up and no pull-down	n/a	
	PA3	ADC_IN3	Analog mode	No pull-up and no pull-down	n/a	
	PA4	ADC_IN4	Analog mode	No pull-up and no pull-down	n/a	
	PA5	ADC_IN5	Analog mode	No pull-up and no pull-down	n/a	
TIM1	PA8	TIM1_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PA9	TIM1_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PA10	TIM1_CH3	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PA11	TIM1_CH4	Alternate Function Push Pull	No pull-up and no pull-down	Low	
TIM2	PB10	TIM2_CH3	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PB11	TIM2_CH4	Alternate Function Push Pull	No pull-up and no pull-down	Low	
TIM3	PC6	TIM3_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PC7	TIM3_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PC8	TIM3_CH3	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PC9	TIM3_CH4	Alternate Function Push Pull	No pull-up and no pull-down	Low	
GPIO	PC0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PC1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PC2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PC3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PA6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PA7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB2	GPIO_EXTI2	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	
	PB12	GPIO_EXTI12	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	
	PC10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PC11	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PC12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PD2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB7	GPIO_Output	Output Push Pull	No pull-up and no 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
System service call via SWI instruction	true	0	0
Pendable request for system service	true	0	0
System tick timer	true	0	0
PVD and VDDIO2 supply comparator interrupts through EXTI lines 16 and 31	unused		
Flash global interrupt	unused		
RCC and CRS global interrupts	unused		
EXTI line 2 and 3 interrupts	unused		
EXTI line 4 to 15 interrupts	unused		
ADC and COMP interrupts (COMP interrupts through EXTI lines 21 and 22)	unused		
TIM1 break, update, trigger and commutation interrupts	unused		
TIM1 capture compare interrupt	unused		
TIM2 global interrupt	unused		
TIM3 global interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F0
Line	STM32F0x2
MCU	STM32F072RBTx
Datasheet	025004_Rev5

7.2. Parameter Selection

Temperature	25
Vdd	3.6

8. Software Project

8.1. Project Settings

Name	Value
Project Name	NewAutoCoffeeCode
Project Folder	C:\Users\user\Documents\AutoCoffeeMaker\EmbeddedCode\NewAutoCoffeeCod
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_F0 V1.9.0

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