1. Description

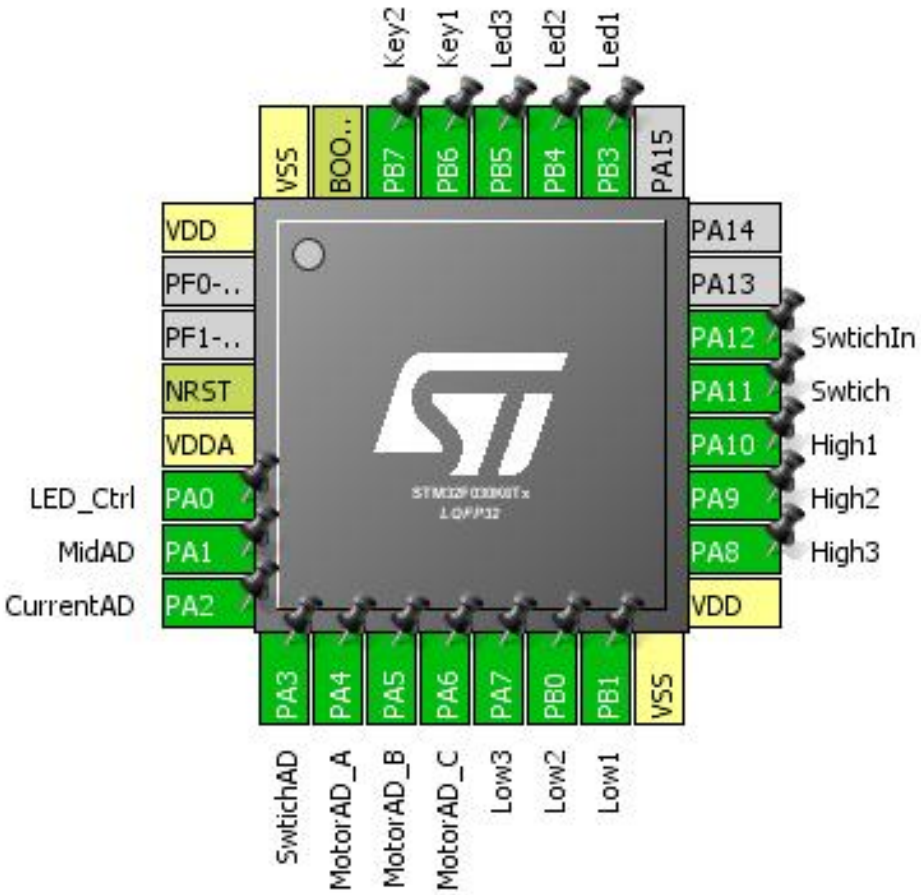
1.1. Project

Project Name	ElectricHandDrill
Board Name	ElectricHandDrill
Generated with:	STM32CubeMX 4.23.0
Date	05/06/2018

1.2. MCU

MCU Series	STM32F0
MCU Line	STM32F0x0 Value Line
MCU name	STM32F030K6Tx
MCU Package	LQFP32
MCU Pin number	32

2. Pinout Configuration

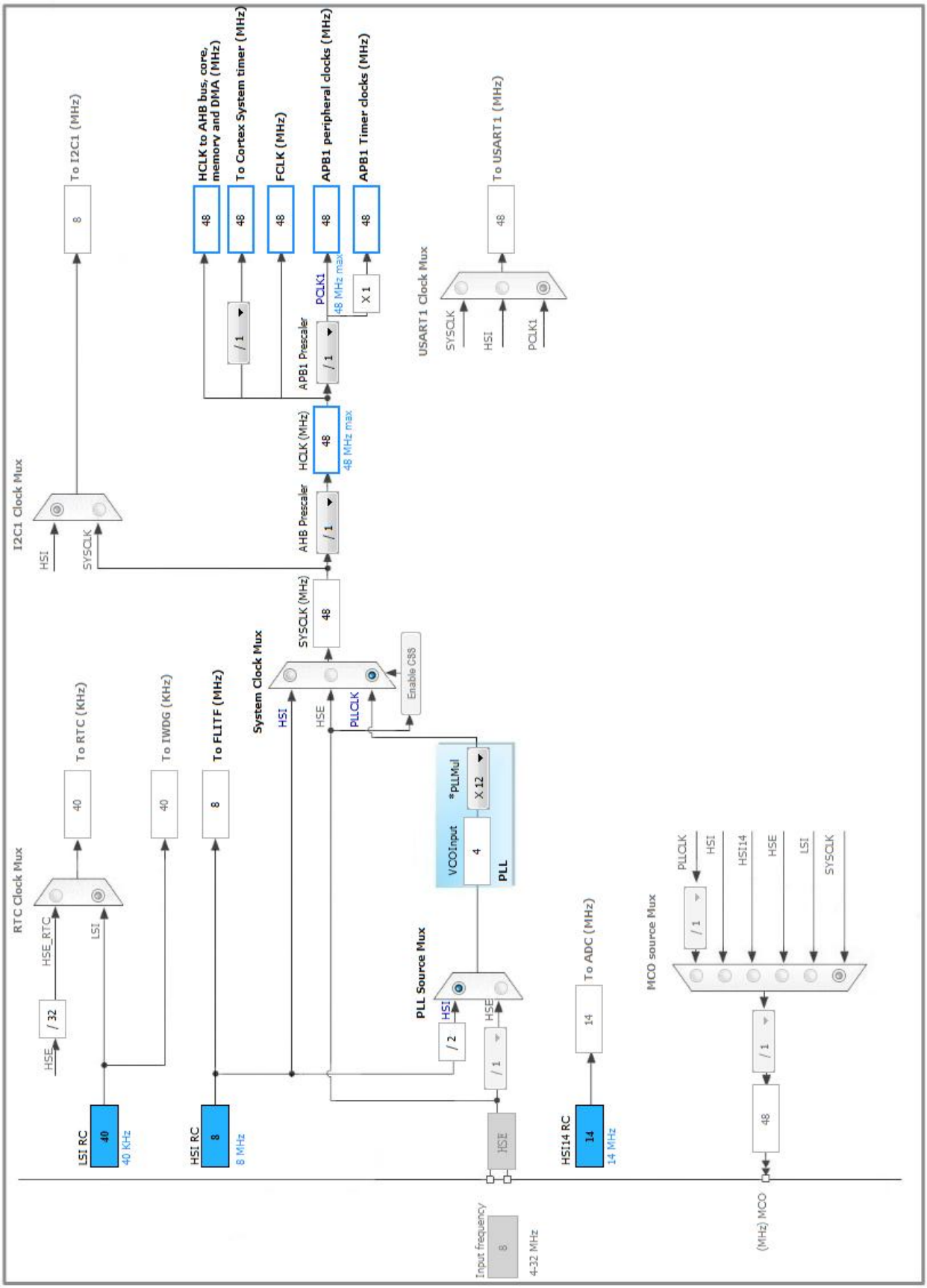


3. Pins Configuration

Pin Number LQFP32	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VDD	Power		
4	NRST	Reset		
5	VDDA	Power		
6	PA0 *	I/O	GPIO_Output	LED_Ctrl
7	PA1	I/O	ADC_IN1	MidAD
8	PA2	I/O	ADC_IN2	CurrentAD
9	PA3	I/O	ADC_IN3	SwtichAD
10	PA4	I/O	ADC_IN4	MotorAD_A
11	PA5	I/O	ADC_IN5	MotorAD_B
12	PA6	I/O	ADC_IN6	MotorAD_C
13	PA7	I/O	TIM1_CH1N	Low3
14	PB0	I/O	TIM1_CH2N	Low2
15	PB1	I/O	TIM1_CH3N	Low1
16	VSS	Power		
17	VDD	Power		
18	PA8	I/O	TIM1_CH1	High3
19	PA9	I/O	TIM1_CH2	High2
20	PA10	I/O	TIM1_CH3	High1
21	PA11 *	I/O	GPIO_Input	Swtich
22	PA12 *	I/O	GPIO_Output	SwtichIn
26	PB3 *	I/O	GPIO_Output	Led1
27	PB4 *	I/O	GPIO_Output	Led2
28	PB5 *	I/O	GPIO_Output	Led3
29	PB6 *	I/O	GPIO_Input	Key1
30	PB7 *	I/O	GPIO_Input	Key2
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. ADC

mode: IN1

mode: IN2

mode: IN3

mode: IN4

mode: IN5

mode: IN6

5.1.1. Parameter Settings:

ADC_Settings:

Clock Prescaler	**Synchronous clock mode divided by 4 ***
Resolution	ADC 12-bit resolution
Data Alignment	Right alignment
Scan Conversion Mode	Forward
Continuous Conversion Mode	**Enabled ***
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	**Enabled ***
End Of Conversion Selection	**End of sequence of conversion ***
Overrun behaviour	Overrun data preserved
Low Power Auto Wait	Disabled
Low Power Auto Power Off	Disabled

ADC_Regular_ConversionMode:

Sampling Time	**7.5 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 CH1N

Channel2: PWM Generation CH2 CH2N

Channel3: PWM Generation CH3 CH3N

Channel4: PWM Generation No Output

5.3.1. Parameter Settings:

Counter Settings:

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

Trigger Output (TRGO) Parameters:

Master/Slave Mode	Disable (no sync between this TIM (Master) and its Slaves
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	**Enable ***
Off State Selection for Run Mode (OSSR)	**Enable ***
Off State Selection for Idle Mode (OSSI)	**Enable ***
Lock Configuration	Off
Dead Time	**64 ***

PWM Generation Channel 1 and 1N:

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

PWM Generation Channel 2 and 2N:

Mode	PWM mode 1
Pulse (16 bits value)	0

Fast Mode	Disable
CH Polarity	High
CHN Polarity	High
CH Idle State	Reset
CHN Idle State	Reset

PWM Generation Channel 3 and 3N:

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

*** 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	PA1	ADC_IN1	Analog mode	No pull-up and no pull-down	n/a	MidAD
	PA2	ADC_IN2	Analog mode	No pull-up and no pull-down	n/a	CurrentAD
	PA3	ADC_IN3	Analog mode	No pull-up and no pull-down	n/a	SwtichAD
	PA4	ADC_IN4	Analog mode	No pull-up and no pull-down	n/a	MotorAD_A
	PA5	ADC_IN5	Analog mode	No pull-up and no pull-down	n/a	MotorAD_B
	PA6	ADC_IN6	Analog mode	No pull-up and no pull-down	n/a	MotorAD_C
TIM1	PA7	TIM1_CH1N	Alternate Function Push Pull	No pull-up and no pull-down	Low	Low3
	PB0	TIM1_CH2N	Alternate Function Push Pull	No pull-up and no pull-down	Low	Low2
	PB1	TIM1_CH3N	Alternate Function Push Pull	No pull-up and no pull-down	Low	Low1
	PA8	TIM1_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	High3
	PA9	TIM1_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	High2
	PA10	TIM1_CH3	Alternate Function Push Pull	No pull-up and no pull-down	Low	High1
GPIO	PA0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED_Ctrl
	PA11	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	Swtich
	PA12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SwtichIn
	PB3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Led1
	PB4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Led2
	PB5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Led3
	PB6	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	Key1
	PB7	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	Key2

6.2. DMA configuration

DMA request	Stream	Direction	Priority
ADC	DMA1_Channel1	Peripheral To Memory	Low

ADC: 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
System service call via SWI instruction	true	0	0
Pendable request for system service	true	0	0
System tick timer	true	0	0
DMA1 channel 1 interrupt	true	0	0
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC interrupt	unused		
TIM1 break, update, trigger and commutation interrupts	unused		
TIM1 capture compare interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F0
Line	STM32F0x0 Value Line
MCU	STM32F030K6Tx
Datasheet	024849_Rev2

7.2. Parameter Selection

Temperature	25
Vdd	3.6

8. Software Project

8.1. Project Settings

Name	Value
Project Name	ElectricHandDrill
Project Folder	D:\Project\STM32CubeMX\workspace\ElectricHandDrill
Toolchain / IDE	SW4STM32
Firmware Package Name and Version	STM32Cube FW_F0 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	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