1. Description

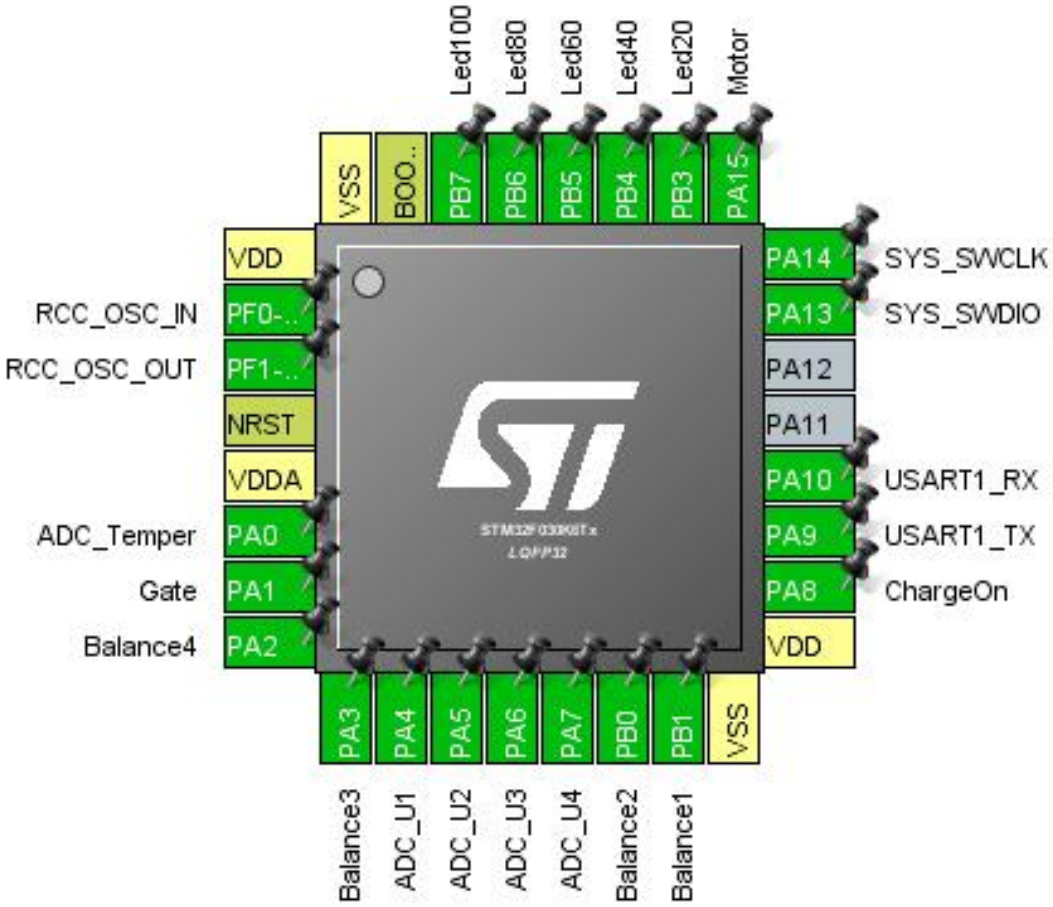
1.1. Project

Project Name	BMS_4S
Board Name	custom
Generated with:	STM32CubeMX 5.0.1
Date	07/31/2019

1.2. MCU

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

2. Pinout Configuration

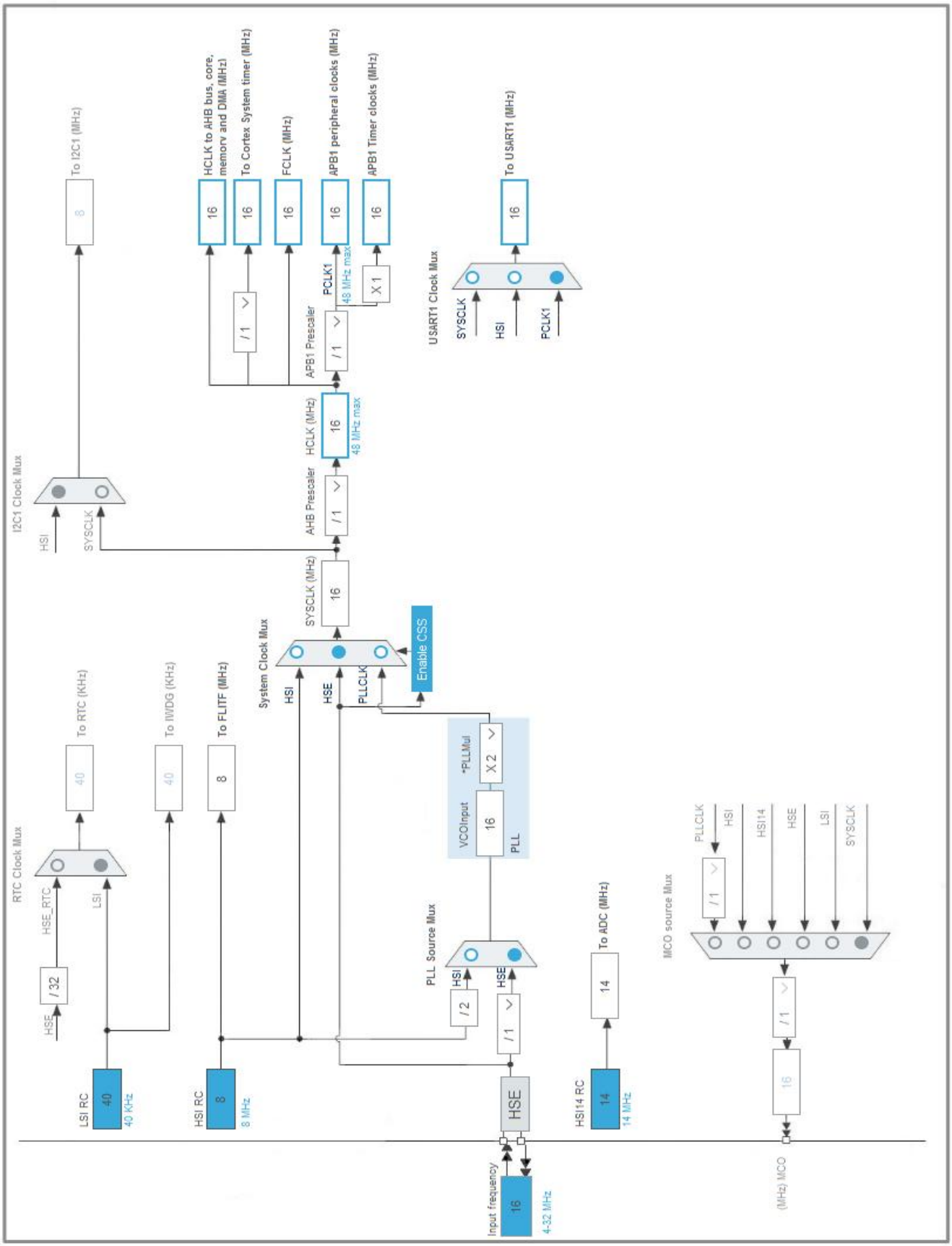


3. Pins Configuration

Pin Number LQFP32	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VDD	Power		
2	PF0-OSC_IN	I/O	RCC_OSC_IN	
3	PF1-OSC_OUT	I/O	RCC_OSC_OUT	
4	NRST	Reset		
5	VDDA	Power		
6	PA0	I/O	ADC_IN0	ADC_Temper
7	PA1 *	I/O	GPIO_Output	Gate
8	PA2 *	I/O	GPIO_Output	Balance4
9	PA3 *	I/O	GPIO_Output	Balance3
10	PA4	I/O	ADC_IN4	ADC_U1
11	PA5	I/O	ADC_IN5	ADC_U2
12	PA6	I/O	ADC_IN6	ADC_U3
13	PA7	I/O	ADC_IN7	ADC_U4
14	PB0 *	I/O	GPIO_Output	Balance2
15	PB1 *	I/O	GPIO_Output	Balance1
16	VSS	Power		
17	VDD	Power		
18	PA8 *	I/O	GPIO_Output	ChargeOn
19	PA9	I/O	USART1_TX	
20	PA10	I/O	USART1_RX	
23	PA13	I/O	SYS_SWDIO	
24	PA14	I/O	SYS_SWCLK	
25	PA15 *	I/O	GPIO_Output	Motor
26	PB3 *	I/O	GPIO_Output	Led20
27	PB4 *	I/O	GPIO_Output	Led40
28	PB5 *	I/O	GPIO_Output	Led60
29	PB6 *	I/O	GPIO_Output	Led80
30	PB7 *	I/O	GPIO_Output	Led100
31	BOOT0	Boot		
32	VSS	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. Software Project

5.1. Project Settings

Name	Value
Project Name	BMS_4S
Project Folder	D:_STM32_PROJECTS\BMS_4S\BMS_4S_v1.0
Toolchain / IDE	Other Toolchains (GPDSC)
Firmware Package Name and Version	STM32Cube FW_F0 V1.9.0

5.2. 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	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

6. Power Consumption Calculator report

6.1. Microcontroller Selection

Series	STM32F0
Line	STM32F0x0 Value Line
MCU	STM32F030K6Tx
Datasheet	024849_Rev2

6.2. Parameter Selection

Temperature	25
Vdd	3.6

7. IPs and Middleware Configuration

7.1. ADC

mode: IN0

mode: IN4

mode: IN5

mode: IN6

mode: IN7

7.1.1. 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

7.2. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

7.2.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Prefetch Buffer	Enabled
Flash Latency(WS)	0 WS (1 CPU cycle)

RCC Parameters:

HSI14 Calibration Value	16
HSE Startup Timout Value (ms)	100
LSE Startup Timout Value (ms)	5000

7.3. SYS

mode: Debug Serial Wire

Timebase Source: SysTick

7.4. USART1

Mode: Asynchronous

7.4.1. 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:

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

*** User modified value**

8. System Configuration

8.1. 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	ADC_Temper
	PA4	ADC_IN4	Analog mode	No pull-up and no pull-down	n/a	ADC_U1
	PA5	ADC_IN5	Analog mode	No pull-up and no pull-down	n/a	ADC_U2
	PA6	ADC_IN6	Analog mode	No pull-up and no pull-down	n/a	ADC_U3
	PA7	ADC_IN7	Analog mode	No pull-up and no pull-down	n/a	ADC_U4
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_SWDIO	n/a	n/a	n/a	
	PA14	SYS_SWCLK	n/a	n/a	n/a	
USART1	PA9	USART1_TX	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
	PA10	USART1_RX	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
GPIO	PA1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Gate
	PA2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Balance4
	PA3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Balance3
	PB0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Balance2
	PB1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Balance1
	PA8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	ChargeOn
	PA15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Motor
	PB3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Led20
	PB4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Led40
	PB5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Led60
	PB6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Led80
	PB7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Led100

8.2. DMA configuration

nothing configured in DMA service

8.3. 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
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC interrupt	unused		
USART1 global interrupt	unused		

*** User modified value**

9. Software Pack Report