1. Description

1.1. Project

Project Name	mech_ctrl_proto
Board Name	NUCLEO-L432KC
Generated with:	STM32CubeMX 5.0.1
Date	01/19/2019

1.2. MCU

MCU Series	STM32L4
MCU Line	STM32L4x2
MCU name	STM32L432KCUx
MCU Package	UFQFPN32
MCU Pin number	32

2. Pinout Configuration

3. Pins Configuration

Pin Number UFQFPN32	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VDD	Power		
2	PC14-OSC32_IN (PC14)	I/O	RCC_OSC32_IN	
3	PC15-OSC32_OUT (PC15)	I/O	RCC_OSC32_OUT	
4	NRST	Reset		
5	VDDA/VREF+	Power		
6	PA0	I/O	RCC_CK_IN	MCO [High speed clock in]
8	PA2	I/O	USART2_TX	VCP_TX
9	PA3 *	I/O	GPIO_Output	NRF_CE
10	PA4 *	I/O	GPIO_Output	NRF_CSN
11	PA5	I/O	SPI1_SCK	
12	PA6	I/O	SPI1_MISO	
13	PA7	I/O	SPI1_MOSI	
14	PB0	I/O	GPIO_EXTI0	NRF_IRQ
16	VSS	Power		
17	VDD	Power		
23	PA13 (JTMS-SWDIO)	I/O	SYS_JTMS-SWDIO	SWDIO
24	PA14 (JTCK-SWCLK)	I/O	SYS_JTCK-SWCLK	SWCLK
25	PA15 (JTDI)	I/O	USART2_RX	VCP_RX
26	PB3 (JTDO-TRACESWO) *	I/O	GPIO_Output	LD3 [Green]
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	mech_ctrl_proto
Project Folder	D:\projects\windsensor\mech_ctrl_proto
Toolchain / IDE	SW4STM32
Firmware Package Name and Version	STM32Cube FW_L4 V1.13.0

5.2. 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

6. Power Consumption Calculator report

6.1. Microcontroller Selection

Series	STM32L4
Line	STM32L4x2
MCU	STM32L432KCUx
Datasheet	028798_Rev2

6.2. Parameter Selection

Temperature	25
Vdd	null

7. IPs and Middleware Configuration

7.1. RCC

mode: High Speed Clock (HSE)

Low Speed Clock (LSE) : Crystal/Ceramic Resonator

7.1.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Instruction Cache	Enabled
Prefetch Buffer	Disabled
Data Cache	Enabled
Flash Latency(WS)	4 WS (5 CPU cycle)

RCC Parameters:

HSI Calibration Value	16
MSI Calibration Value	0
MSI Auto Calibration	Enabled
HSE Startup Timout Value (ms)	100
LSE Startup Timout Value (ms)	5000
LSE Drive Capability	LSE oscillator low drive capability

Power Parameters:

Power Regulator Voltage Scale	Power Regulator Voltage Scale 1

7.2. SPI1

Mode: Full-Duplex Master

7.2.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	**8 Bits ***
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	**16 ***
Baud Rate	**5.0 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled

| NSSP Mode | **Disabled *** |
| NSS Signal Type | Software |

7.3. SYS

Debug: Serial Wire

Timebase Source: SysTick

7.4. USART2

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:

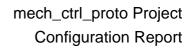| Auto Baudrate | Disable |
TX Pin Active Level Inversion	Disable
RX Pin Active Level Inversion	Disable
Data Inversion	Disable
TX and RX Pins Swapping	Disable
Overrun	Enable
DMA on RX Error	Enable
MSB First	Disable

* User modified value

8. System Configuration

8.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
RCC	PC14-OSC32_IN (PC14)	RCC_OSC32_IN	n/a	n/a	n/a	
	PC15-OSC32_OUT (PC15)	RCC_OSC32_OUT	n/a	n/a	n/a	
	PA0	RCC_CK_IN	n/a	n/a	n/a	MCO [High speed clock in]
SPI1	PA5	SPI1_SCK	Alternate Function Push Pull	No pull-up and no pull-down	**Very High** *	
	PA6	SPI1_MISO	Alternate Function Push Pull	No pull-up and no pull-down	**Very High** *	
	PA7	SPI1_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	**Very High** *	
SYS	PA13 (JTMS-SWDIO)	SYS_JTMS-SWDIO	n/a	n/a	n/a	SWDIO
	PA14 (JTCK-SWCLK)	SYS_JTCK-SWCLK	n/a	n/a	n/a	SWCLK
USART2	PA2	USART2_TX	Alternate Function Push Pull	No pull-up and no pull-down	**Very High** *	VCP_TX
	PA15 (JTDI)	USART2_RX	Alternate Function Push Pull	No pull-up and no pull-down	**Very High** *	VCP_RX
GPIO	PA3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**Very High** *	NRF_CE
	PA4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**Very High** *	NRF_CSN
	PB0	GPIO_EXTI0	**External Interrupt Mode with Falling edge trigger detection**	**Pull-up ***	**n/a**	NRF_IRQ
	PB3 (JTDO-TRACESWO)	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LD3 [Green]

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
Memory management fault	true	0	0
Prefetch 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
PVD/PVM1/PVM2/PVM3/PVM4 interrupts through EXTI lines 16/35/36/37/38	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
SPI1 global interrupt	unused		
USART2 global interrupt	unused		
FPU global interrupt	unused		

* User modified value

9. Software Pack Report