

## 1. Description

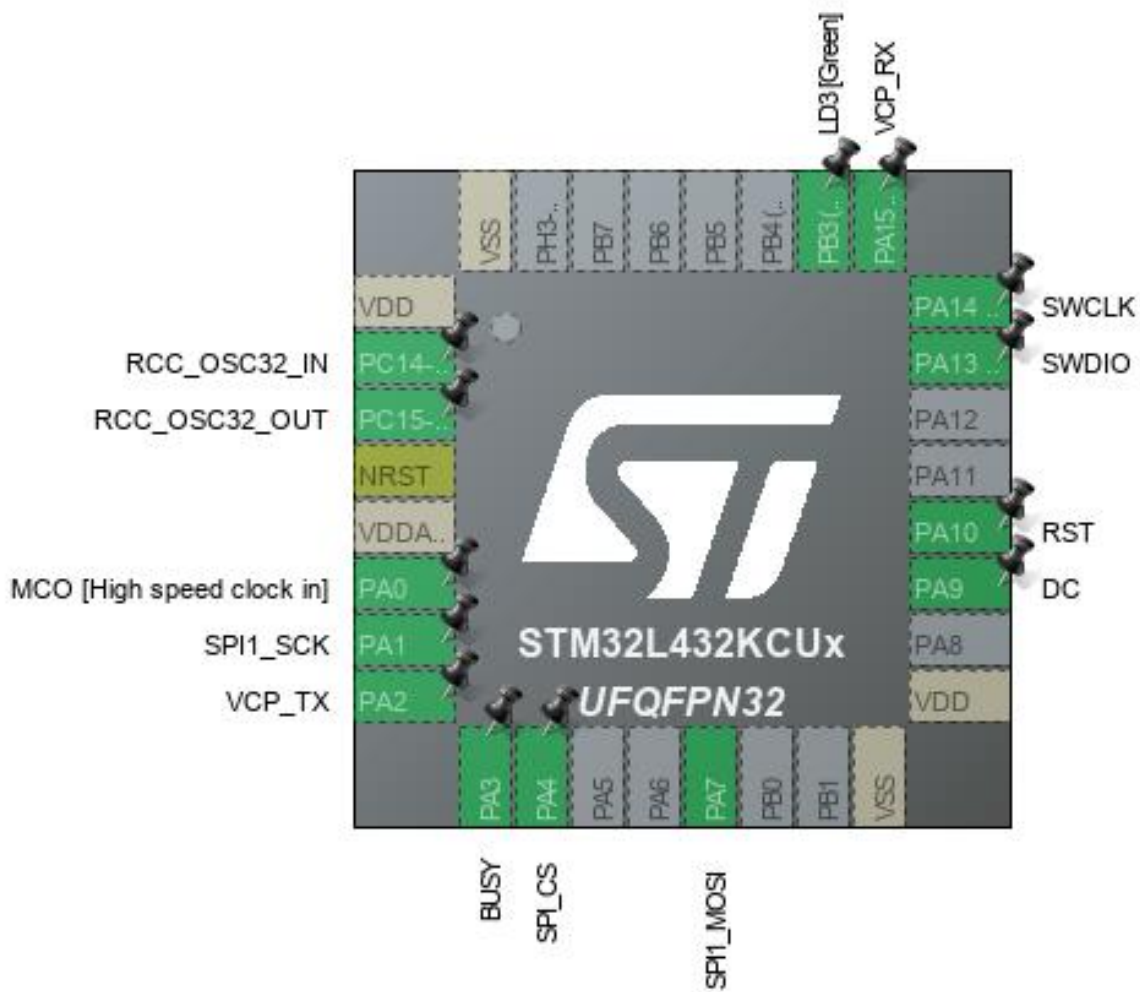
### 1.1. Project

Project Name	Demo
Board Name	NUCLEO-L432KC
Generated with:	STM32CubeMX 5.6.1
Date	05/30/2020

### 1.2. MCU

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

## 2. Pinout Configuration

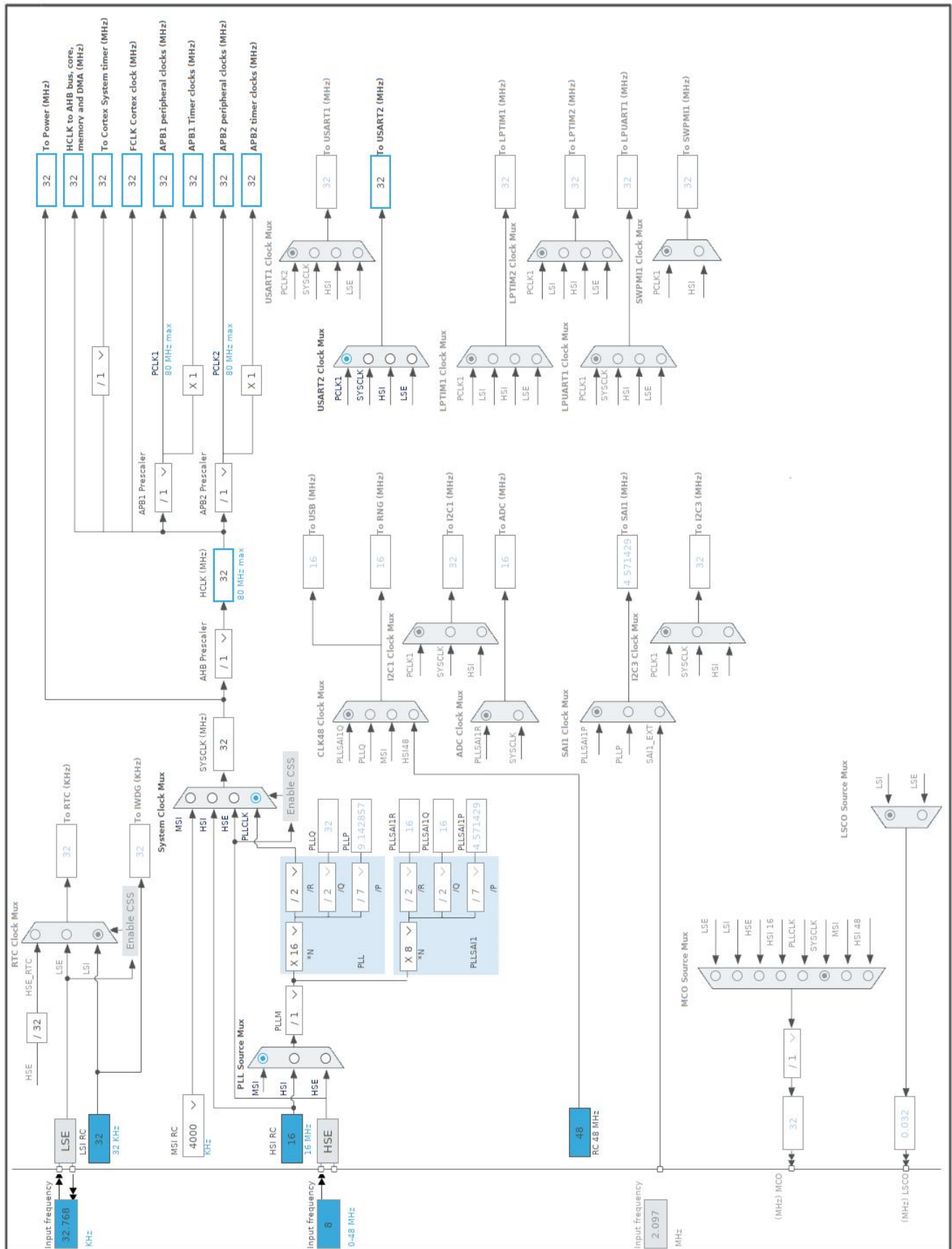


### 3. Pins Configuration

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]
7	PA1	I/O	SPI1_SCK	SPI1_SCK
8	PA2	I/O	USART2_TX	VCP_TX
9	PA3 *	I/O	GPIO_Input	BUSY
10	PA4 *	I/O	GPIO_Output	SPI_CS
13	PA7	I/O	SPI1_MOSI	SPI1_MOSI
16	VSS	Power		
17	VDD	Power		
19	PA9 *	I/O	GPIO_Output	DC
20	PA10 *	I/O	GPIO_Output	RST
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	Demo
Project Folder	/home/ivan/WORK/EINK/Demo
Toolchain / IDE	STM32CubeIDE
Firmware Package Name and Version	STM32Cube FW_L4 V1.15.1

### 5.2. Code Generation Settings

Name	Value
STM32Cube MCU packages and embedded software	Copy only the necessary library files
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	STM32L4
Line	STM32L4x2
MCU	STM32L432KCUx
Datasheet	028798_Rev2

### 6.2. Parameter Selection

Temperature	25
Vdd	3.0

### 6.3. Battery Selection

Battery	Li-SOCL2(A3400)
Capacity	3400.0 mAh
Self Discharge	0.08 %/month
Nominal Voltage	3.6 V
Max Cont Current	100.0 mA
Max Pulse Current	200.0 mA
Cells in series	1
Cells in parallel	1

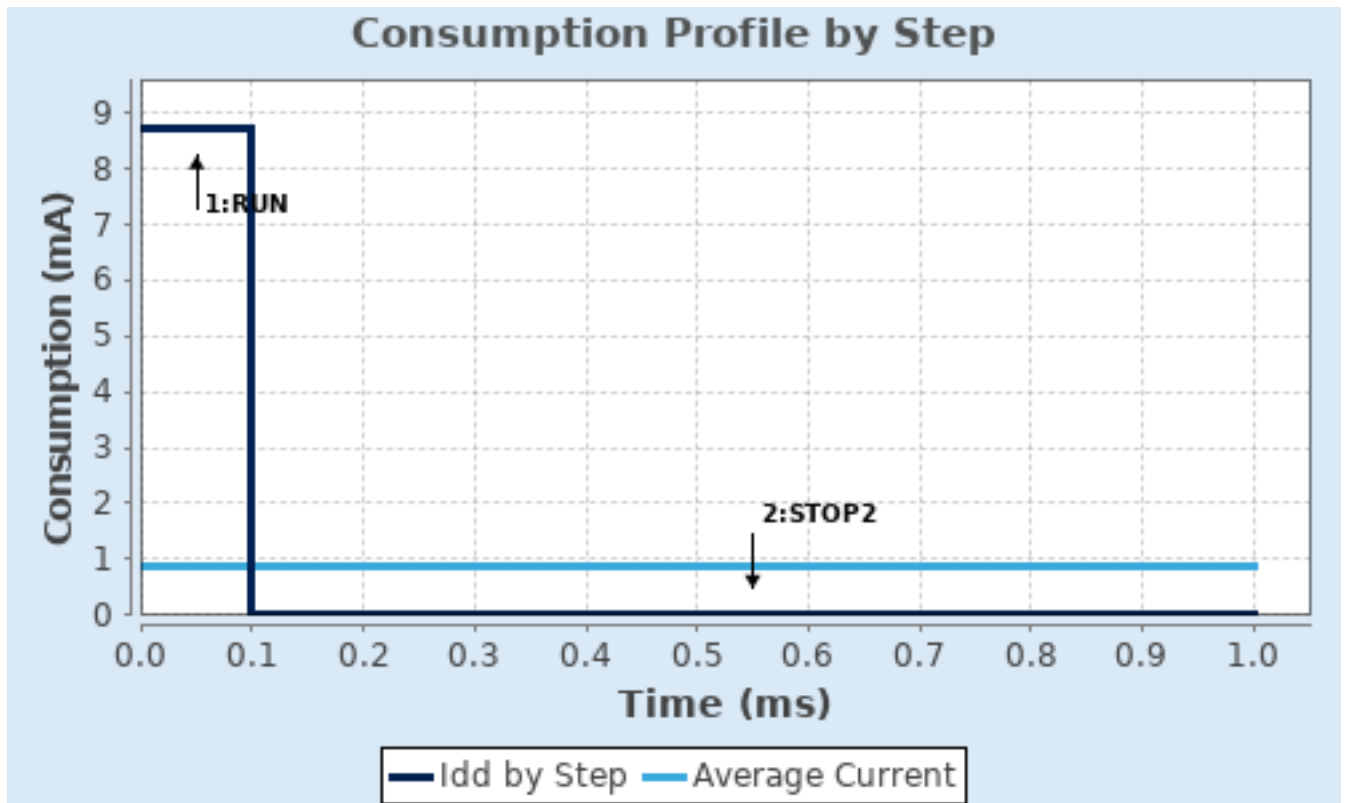
### 6.4. Sequence

<b>Step</b>	Step1	Step2
<b>Mode</b>	RUN	STOP2
<b>Vdd</b>	3.0	3.0
<b>Voltage Source</b>	Battery	Battery
<b>Range</b>	Range1-High	NoRange
<b>Fetch Type</b>	SRAM2	n/a
<b>CPU Frequency</b>	80 MHz	0 Hz
<b>Clock Configuration</b>	HSE BYP PLL	ALL CLOCKS OFF
<b>Clock Source Frequency</b>	4 MHz	0 Hz
<b>Peripherals</b>		
<b>Additional Cons.</b>	0 mA	0 mA
<b>Average Current</b>	8.71 mA	1.06 $\mu$ A
<b>Duration</b>	0.1 ms	0.9 ms
<b>DMIPS</b>	100.0	0.0
<b>Ta Max</b>	103.98	105
<b>Category</b>	In DS Table	In DS Table

## 6.5. RESULTS

Sequence Time	1 ms	Average Current	871.95 $\mu$ A
Battery Life	5 months, 9 days, 16 hours	Average DMIPS	100.0 DMIPS

## 6.6. Chart





## 7. IPs and Middleware Configuration

### 7.1. GPIO

### 7.2. RCC

**mode: High Speed Clock (HSE)**

**Low Speed Clock (LSE) : Crystal/Ceramic Resonator**

#### 7.2.1. Parameter Settings:

##### System Parameters:

VDD voltage (V)	3.3
Instruction Cache	Enabled
Prefetch Buffer	Disabled
Data Cache	Enabled
Flash Latency(WS)	1 WS (2 CPU cycle)

##### RCC Parameters:

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

##### Power Parameters:

Power Regulator Voltage Scale	Power Regulator Voltage Scale 1
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### 7.3. SPI1

**Mode: Transmit Only Master**

#### 7.3.1. Parameter Settings:

##### Basic Parameters:

Frame Format	Motorola
Data Size	<b>8 Bits *</b>
First Bit	MSB First

##### Clock Parameters:

Prescaler (for Baud Rate)	<b>32 *</b>
Baud Rate	<b>1000.0 KBits/s *</b>
Clock Polarity (CPOL)	Low

Clock Phase (CPHA) 1 Edge

**Advanced Parameters:**

CRC Calculation	Disabled
NSSP Mode	Enabled
NSS Signal Type	Software

## 7.4. SYS

**Debug: Serial Wire**

**Timebase Source: SysTick**

## 7.5. USART2

**Mode: Asynchronous**

### 7.5.1. 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_CLK_IN	n/a	n/a	n/a	MCO [High speed clock in]
SPI1	PA1	SPI1_SCK	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	SPI1_SCK
	PA7	SPI1_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	SPI1_MOSI
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_Input	Input mode	No pull-up and no pull-down	n/a	BUSY
	PA4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SPI_CS
	PA9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	DC
	PA10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	RST
	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
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. Predefined Views - Category view : Current

### Middleware

#### System Core

#### Analog

#### Timers

#### Connectivity

#### Multimedia

#### Security

#### Computing

DMA

SPI1 

GPIO 

USART2 

NVIC 

RCC 

SYS 

## ***10. Software Pack Report***