

## 1. Description

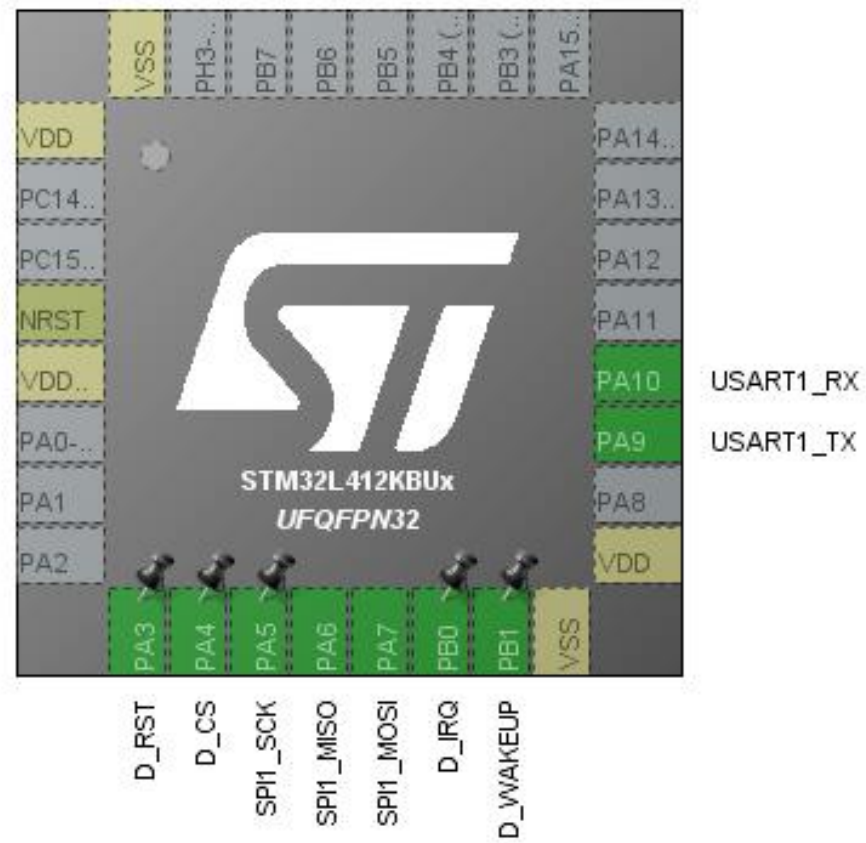
### 1.1. Project

Project Name	UWB
Board Name	custom
Generated with:	STM32CubeMX 5.1.0
Date	03/28/2019

### 1.2. MCU

MCU Series	STM32L4
MCU Line	STM32L4x2
MCU name	STM32L412KBUx
MCU Package	UFQFPN32
MCU Pin number	32

## 2. Pinout Configuration

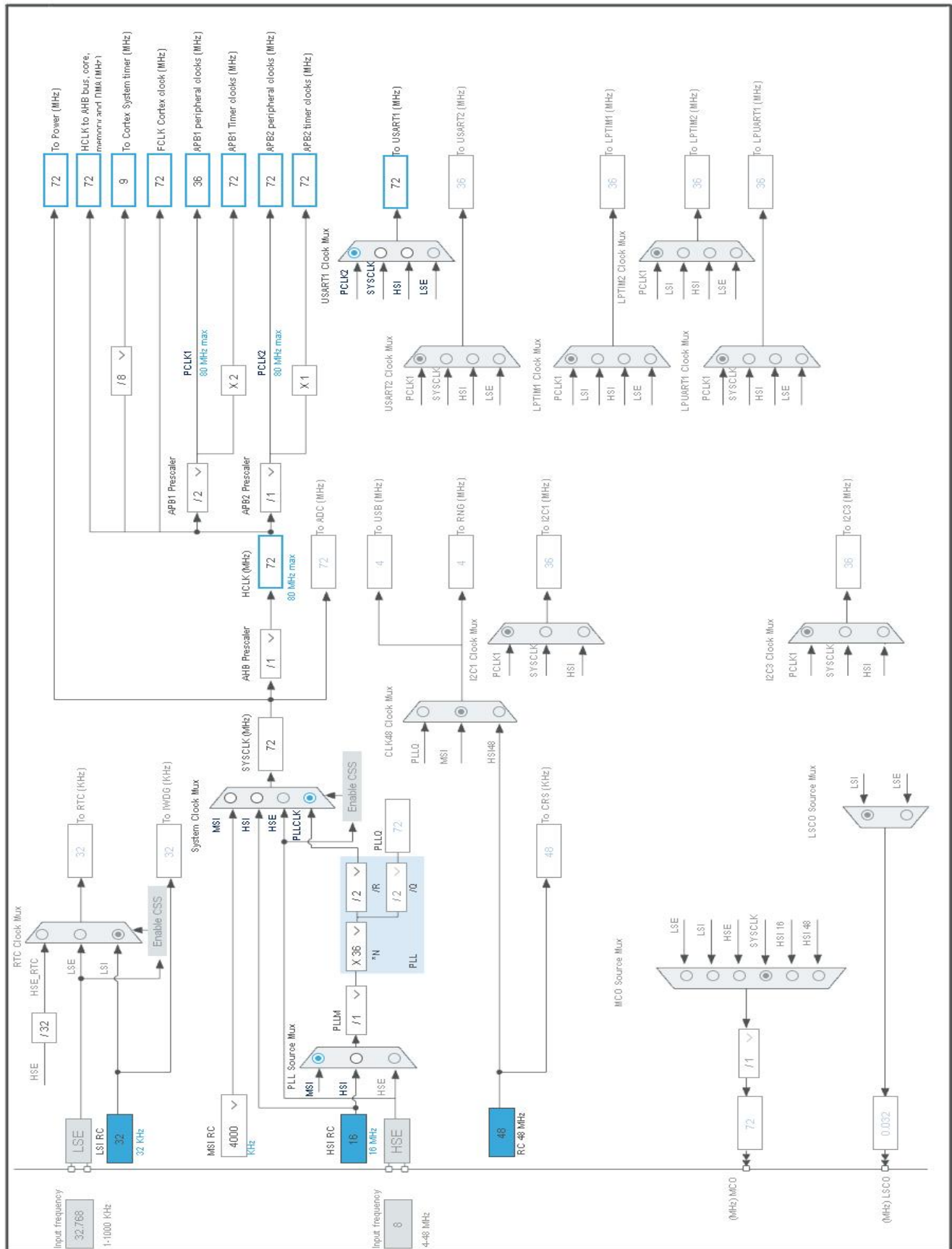


### 3. Pins Configuration

Pin Number UFQFPN32	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VDD	Power		
4	NRST	Reset		
5	VDDA/VREF+	Power		
9	PA3 *	I/O	GPIO_Input	D_RST
10	PA4 *	I/O	GPIO_Output	D_CS
11	PA5	I/O	SPI1_SCK	
12	PA6	I/O	SPI1_MISO	
13	PA7	I/O	SPI1_MOSI	
14	PB0	I/O	GPIO_EXTI0	D_IRQ
15	PB1 *	I/O	GPIO_Output	D_WAKEUP
16	VSS	Power		
17	VDD	Power		
19	PA9	I/O	USART1_TX	
20	PA10	I/O	USART1_RX	
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	UWB
Project Folder	F:\zhangyusheng\Project\UWB1\UWB
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_L4 V1.13.0

### 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	STM32L4
Line	STM32L4x2
MCU	STM32L412KBUx
Datasheet	DS12469_Rev0

### 6.2. Parameter Selection

Temperature	25
Vdd	null

## 7. IPs and Middleware Configuration

### 7.1. RCC

#### 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	64
MSI Calibration Value	0
MSI Auto Calibration	Disabled
HSE Startup Timeout Value (ms)	100
LSE Startup Timeout Value (ms)	5000

##### Power Parameters:

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

#### Mode: Full-Duplex Master

#### 7.2.1. Parameter Settings:

##### Basic Parameters:

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

##### Clock Parameters:

Prescaler (for Baud Rate)	<b>4 *</b>
Baud Rate	<b>18.0 MBits/s *</b>
Clock Polarity (CPOL)	<b>High *</b>
Clock Phase (CPHA)	<b>2 Edge *</b>

##### Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

### 7.3. SYS

**Timebase Source: SysTick**

### 7.4. USART1

**Mode: Asynchronous**

#### 7.4.1. Parameter Settings:

##### Basic Parameters:

Baud Rate	<b>9600 *</b>
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
SPI1	PA5	SPI1_SCK	Alternate Function Push Pull	<b>Pull-up *</b>	<b>Very High *</b>	
	PA6	SPI1_MISO	Alternate Function Push Pull	No pull-up and no pull-down	<b>Very High *</b>	
	PA7	SPI1_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	<b>Very High *</b>	
USART1	PA9	USART1_TX	Alternate Function Push Pull	No pull-up and no pull-down	<b>Very High *</b>	
	PA10	USART1_RX	Alternate Function Push Pull	No pull-up and no pull-down	<b>Very High *</b>	
GPIO	PA3	GPIO_Input	Input mode	<b>Pull-up *</b>	n/a	D_RST
	PA4	GPIO_Output	Output Push Pull	<b>Pull-up *</b>	<b>Very High *</b>	D_CS
	PB0	GPIO_EXTI0	External Interrupt Mode with Rising edge trigger detection	<b>Pull-down *</b>	n/a	D_IRQ
	PB1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	<b>Very High *</b>	D_WAKEUP

### 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	8	0
PVD/PVM1/PVM3/PVM4 interrupts through EXTI lines 16/35/37/38	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
SPI1 global interrupt	unused		
USART1 global interrupt	unused		
FPU global interrupt	unused		

\* User modified value

## ***9. Software Pack Report***