1. Description

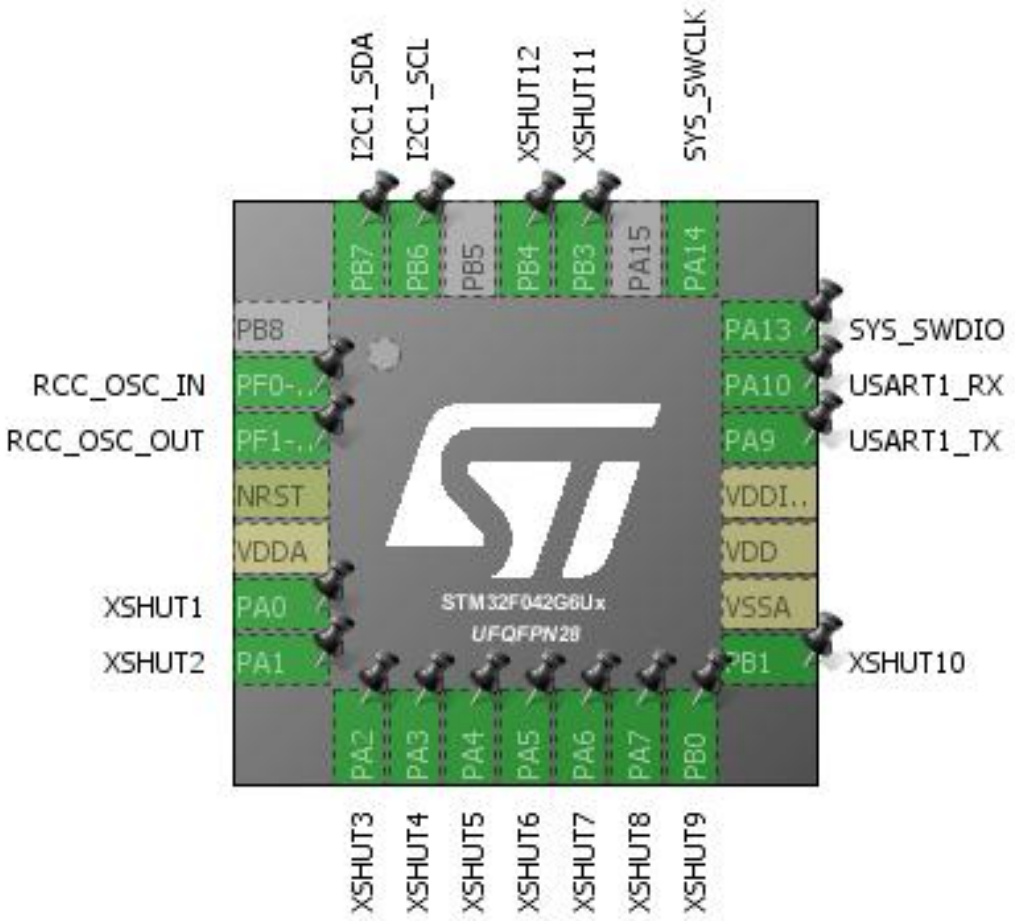
1.1. Project

Project Name	vl53l1x_module
Board Name	custom
Generated with:	STM32CubeMX 4.27.0
Date	12/15/2018

1.2. MCU

MCU Series	STM32F0
MCU Line	STM32F0x2
MCU name	STM32F042G6Ux
MCU Package	UFQFPN28
MCU Pin number	28

2. Pinout Configuration

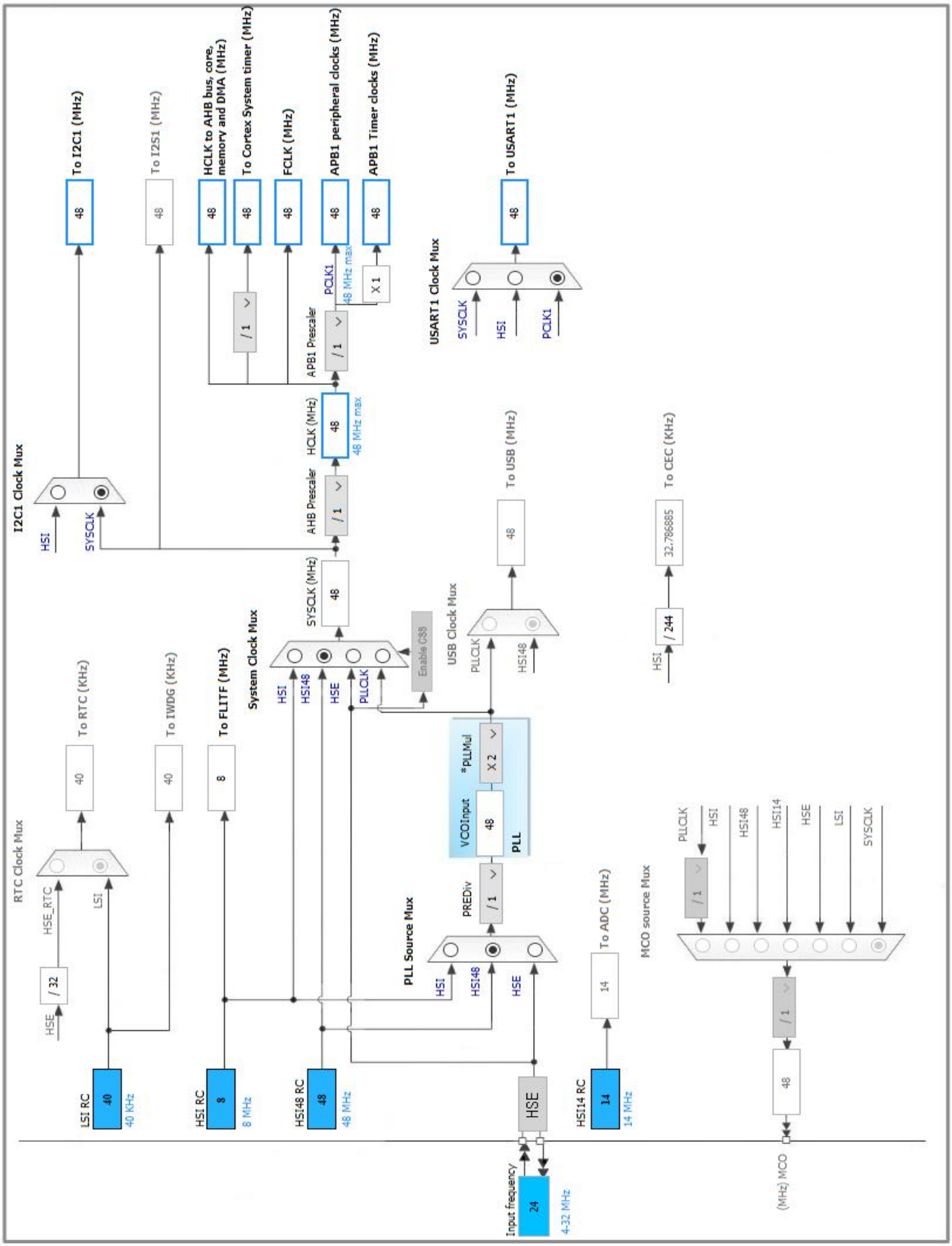


3. Pins Configuration

Pin Number UFQFPN28	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
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	GPIO_Output	XSHUT1
7	PA1 *	I/O	GPIO_Output	XSHUT2
8	PA2 *	I/O	GPIO_Output	XSHUT3
9	PA3 *	I/O	GPIO_Output	XSHUT4
10	PA4 *	I/O	GPIO_Output	XSHUT5
11	PA5 *	I/O	GPIO_Output	XSHUT6
12	PA6 *	I/O	GPIO_Output	XSHUT7
13	PA7 *	I/O	GPIO_Output	XSHUT8
14	PB0 *	I/O	GPIO_Output	XSHUT9
15	PB1 *	I/O	GPIO_Output	XSHUT10
16	VSSA	Power		
17	VDD	Power		
18	VDDIO2	Power		
19	PA9	I/O	USART1_TX	
20	PA10	I/O	USART1_RX	
21	PA13	I/O	SYS_SWDIO	
22	PA14	I/O	SYS_SWCLK	
24	PB3 *	I/O	GPIO_Output	XSHUT11
25	PB4 *	I/O	GPIO_Output	XSHUT12
27	PB6	I/O	I2C1_SCL	
28	PB7	I/O	I2C1_SDA	

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. I2C1

I2C: I2C

5.1.1. Parameter Settings:

Timing configuration:

I2C Speed Mode	Standard Mode
I2C Speed Frequency (KHz)	100
Rise Time (ns)	0
Fall Time (ns)	0
Coefficient of Digital Filter	0
Analog Filter	Enabled
Timing	**0x20303E5D ***

Slave Features:

Clock No Stretch Mode	Disabled
General Call Address Detection	Disabled
Primary Address Length selection	7-bit
Dual Address Acknowledged	Disabled
Primary slave address	0

5.2. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

5.2.1. Parameter Settings:

System Parameters:

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

RCC Parameters:

HSE Startup Timout Value (ms)	100
LSE Startup Timout Value (ms)	5000

5.3. SYS

mode: Debug Serial Wire

Timebase Source: TIM14

5.4. USART1

Mode: Asynchronous

5.4.1. 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**

6. System Configuration

6.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
I2C1	PB6	I2C1_SCL	Alternate Function Open Drain	Pull-up	**High ***	
	PB7	I2C1_SDA	Alternate Function Open Drain	Pull-up	**High ***	
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	PA0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	XSHUT1
	PA1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	XSHUT2
	PA2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	XSHUT3
	PA3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	XSHUT4
	PA4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	XSHUT5
	PA5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	XSHUT6
	PA6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	XSHUT7
	PA7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	XSHUT8
	PB0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	XSHUT9
	PB1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	XSHUT10
	PB3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	XSHUT11
	PB4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	XSHUT12

6.2. DMA configuration

DMA request	Stream	Direction	Priority
USART1_TX	DMA1_Channel2	Memory To Peripheral	Low
USART1_RX	DMA1_Channel5	Peripheral To Memory	**Medium ***

USART1_TX: DMA1_Channel2 DMA request Settings:

Mode:	Normal
Peripheral Increment:	Disable
Memory Increment:	**Enable ***
Peripheral Data Width:	Byte
Memory Data Width:	Byte

USART1_RX: DMA1_Channel5 DMA request Settings:

Mode:	Normal
Peripheral Increment:	Disable
Memory Increment:	**Enable ***
Peripheral Data Width:	Byte
Memory Data Width:	Byte

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 2 and 3 interrupts	true	0	0
DMA1 channel 4 and 5 interrupts	true	0	0
TIM14 global interrupt	true	0	0
PVD and VDDIO2 supply comparator interrupts through EXTI lines 16 and 31	unused		
Flash global interrupt	unused		
RCC and CRS global interrupts	unused		
I2C1 event global interrupt / I2C1 wake-up interrupt through EXTI line 23	unused		
USART1 global interrupt / USART1 wake-up interrupt through EXTI line 25	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F0
Line	STM32F0x2
MCU	STM32F042G6Ux
Datasheet	025832_Rev5

7.2. Parameter Selection

Temperature	25
Vdd	3.6

8. Software Project

8.1. Project Settings

Name	Value
Project Name	vl53l1x_module
Project Folder	C:\Users\bbing\OneDrive\work\nerdvana\vl53l1x_module\src\vl53l1x-module
Toolchain / IDE	Makefile
Firmware Package Name and Version	STM32Cube FW_F0 V1.9.0

8.2. 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	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

9. Software Pack Report