1. Description

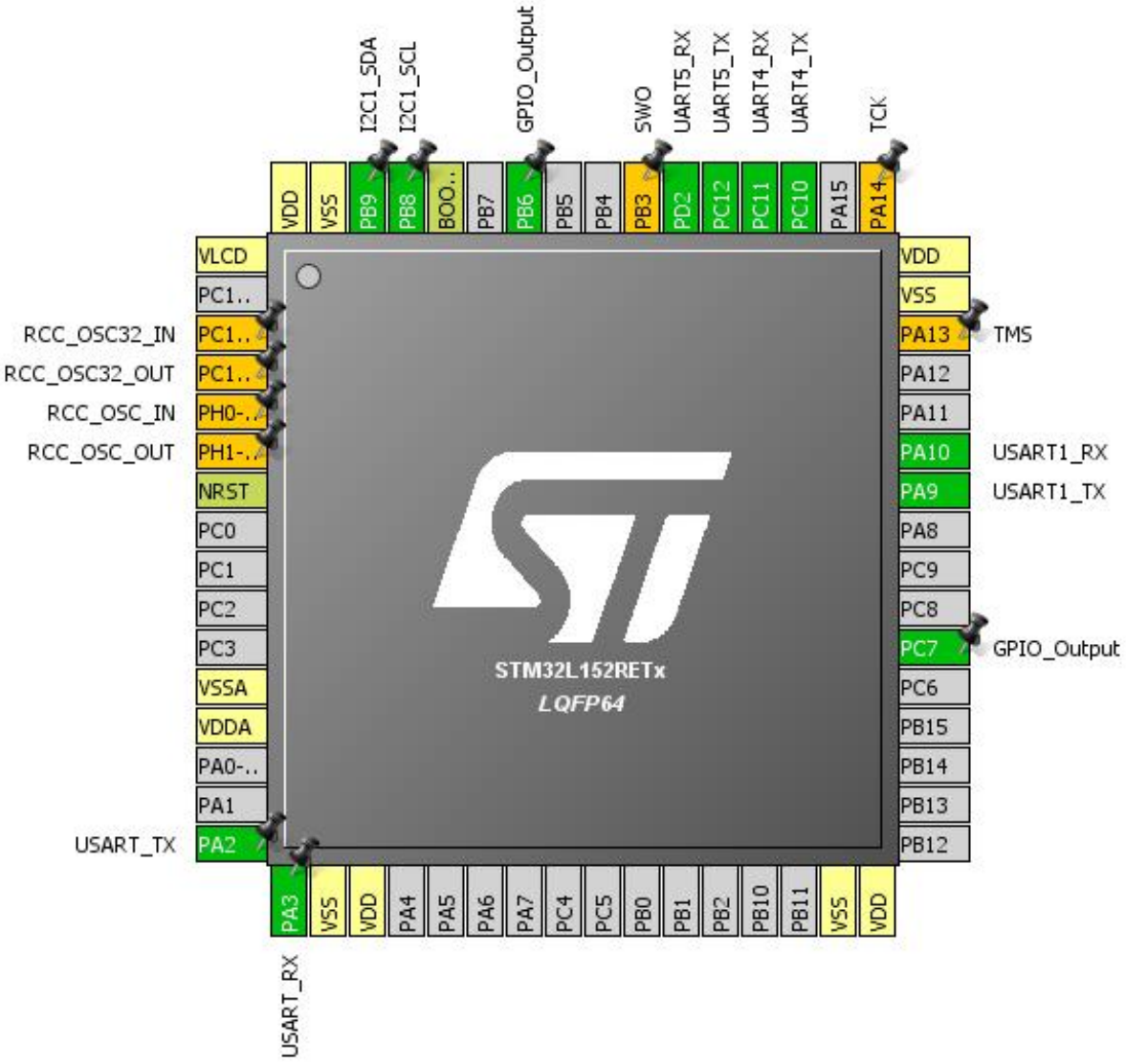
1.1. Project

Project Name	Final
Board Name	NUCLEO-L152RE
Generated with:	STM32CubeMX 4.23.0
Date	01/10/2018

1.2. MCU

MCU Series	STM32L1
MCU Line	STM32L151/152
MCU name	STM32L152RETx
MCU Package	LQFP64
MCU Pin number	64

2. Pinout Configuration



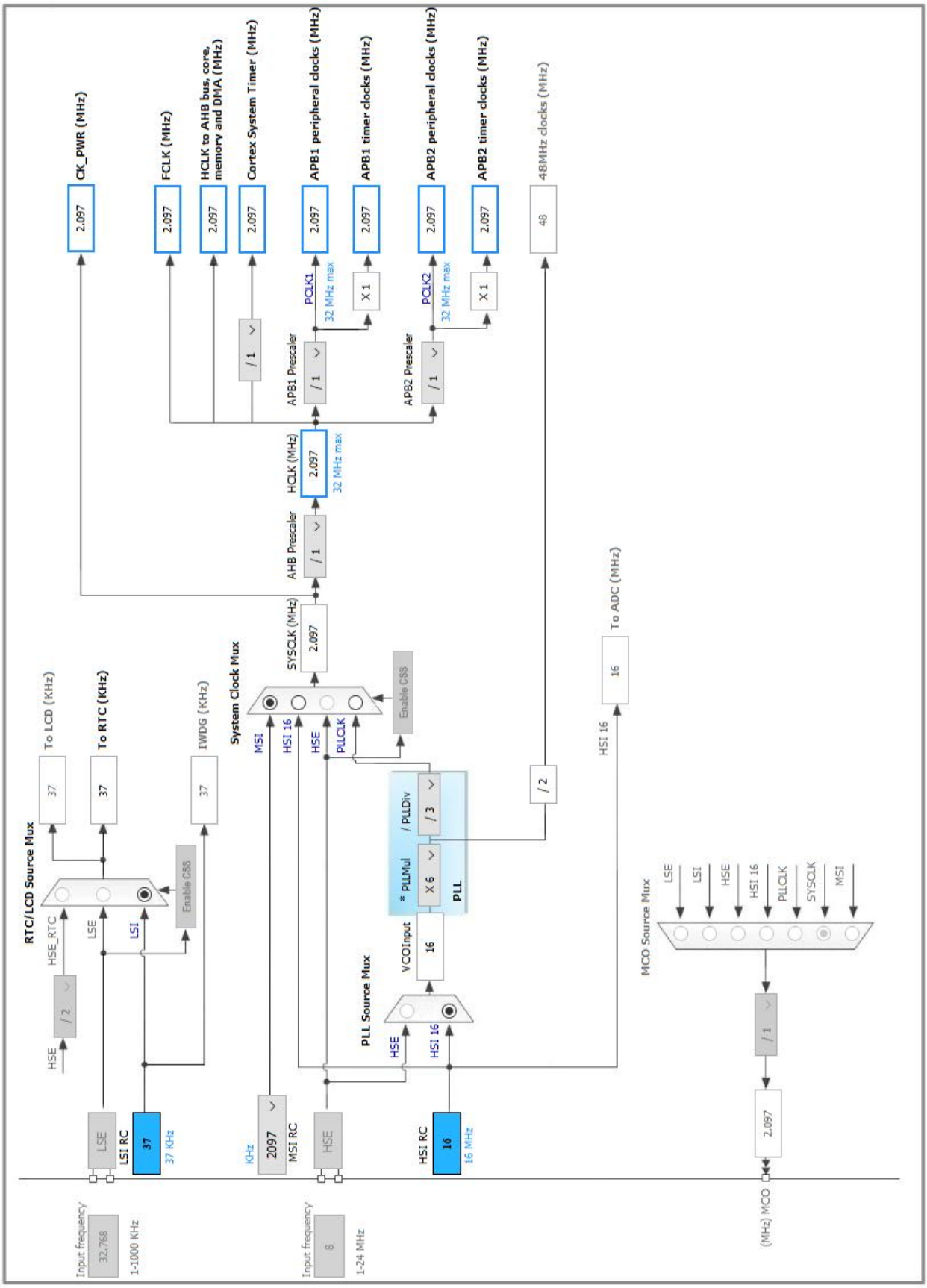
3. Pins Configuration

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VLCD	Power		
3	PC14-OSC32_IN *	I/O	RCC_OSC32_IN	
4	PC15-OSC32_OUT *	I/O	RCC_OSC32_OUT	
5	PH0-OSC_IN *	I/O	RCC_OSC_IN	
6	PH1-OSC_OUT *	I/O	RCC_OSC_OUT	
7	NRST	Reset		
12	VSSA	Power		
13	VDDA	Power		
16	PA2	I/O	USART2_TX	USART_TX
17	PA3	I/O	USART2_RX	USART_RX
18	VSS	Power		
19	VDD	Power		
31	VSS	Power		
32	VDD	Power		
38	PC7 **	I/O	GPIO_Output	
42	PA9	I/O	USART1_TX	
43	PA10	I/O	USART1_RX	
46	PA13 *	I/O	SYS_JTMS-SWDIO	TMS
47	VSS	Power		
48	VDD	Power		
49	PA14 *	I/O	SYS_JTCK-SWCLK	TCK
51	PC10	I/O	UART4_TX	
52	PC11	I/O	UART4_RX	
53	PC12	I/O	UART5_TX	
54	PD2	I/O	UART5_RX	
55	PB3 *	I/O	SYS_JTDO-TRACESWO	SWO
58	PB6 **	I/O	GPIO_Output	
60	BOOT0	Boot		
61	PB8	I/O	I2C1_SCL	
62	PB9	I/O	I2C1_SDA	
63	VSS	Power		
64	VDD	Power		

** The pin is affected with an I/O function

* The pin is affected with a peripheral function but no peripheral mode is activated

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. I2C1

I2C: I2C

5.1.1. Parameter Settings:

Master Features:

I2C Speed Mode	Standard Mode
I2C Clock Speed (Hz)	100000

Slave Features:

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

5.2. RTC

mode: Activate Clock Source
mode: Activate Calendar
WakeUp: Internal WakeUp

5.2.1. Parameter Settings:

General:

Hour Format	Hourformat 24
Asynchronous Predivider value	127
Synchronous Predivider value	255

Calendar Time:

Data Format	BCD data format
Hours	0
Minutes	0
Seconds	0
Day Light Saving: value of hour adjustment	Daylightsaving None
Store Operation	Storeoperation Reset

Calendar Date:

Week Day	Monday
Month	January
Date	1
Year	0

Wake UP:

Wake Up Clock	RTCCLK / 16
Wake Up Counter	**23125 ***

5.3. SYS

Timebase Source: SysTick

5.4. UART4

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

5.5. UART5

Mode: Asynchronous

5.5.1. Parameter Settings:

Basic Parameters:

Baud Rate	**9600 ***
Word Length	8 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples

5.6. USART1

Mode: Asynchronous

5.6.1. Parameter Settings:

Basic Parameters:

Baud Rate	**4800 ***
Word Length	8 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples

5.7. USART2

Mode: Asynchronous

5.7.1. 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

*** 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	PB8	I2C1_SCL	Alternate Function Open Drain	Pull-up	**High ***	
	PB9	I2C1_SDA	Alternate Function Open Drain	Pull-up	**High ***	
UART4	PC10	UART4_TX	Alternate Function Push Pull	Pull-up	**High ***	
	PC11	UART4_RX	Alternate Function Push Pull	Pull-up	**High ***	
UART5	PC12	UART5_TX	Alternate Function Push Pull	Pull-up	**High ***	
	PD2	UART5_RX	Alternate Function Push Pull	Pull-up	**High ***	
USART1	PA9	USART1_TX	Alternate Function Push Pull	Pull-up	**High ***	
	PA10	USART1_RX	Alternate Function Push Pull	Pull-up	**High ***	
USART2	PA2	USART2_TX	Alternate Function Push Pull	Pull-up	**High ***	USART_TX
	PA3	USART2_RX	Alternate Function Push Pull	Pull-up	**High ***	USART_RX
Single Mapped Signals	PC14-OSC32_IN	RCC_OSC32_IN	n/a	n/a	n/a	
	PC15-OSC32_OUT	RCC_OSC32_OUT	n/a	n/a	n/a	
	PH0-OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PH1-OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	TMS
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	TCK
	PB3	SYS_JTDO-TRACESWO	n/a	n/a	n/a	SWO
GPIO	PC7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Very Low	
	PB6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Very Low	

6.2. DMA configuration

DMA request	Stream	Direction	Priority
UART4_RX	DMA2_Channel3	Peripheral To Memory	Low
USART1_RX	DMA1_Channel5	Peripheral To Memory	Low

UART4_RX: DMA2_Channel3 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
Memory management fault	true	0	0
Pre-fetch 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
RTC wake-up interrupt through EXTI line 20	true	0	0
DMA1 channel5 global interrupt	true	0	0
I2C1 event interrupt	true	0	0
I2C1 error interrupt	true	0	0
USART1 global interrupt	true	0	0
USART2 global interrupt	true	0	0
UART4 global interrupt	true	0	0
UART5 global interrupt	true	0	0
DMA2 channel3 global interrupt	true	0	0
Flash global interrupt	unused		
RCC global interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32L1
Line	STM32L151/152
MCU	STM32L152RETx
Datasheet	025433_Rev8

7.2. Parameter Selection

Temperature	25
Vdd	3.0

8. Software Project

8.1. Project Settings

Name	Value
Project Name	Final
Project Folder	C:\Users\Joost\Documents\Git_Projects\ProjectX\Final
Toolchain / IDE	SW4STM32
Firmware Package Name and Version	STM32Cube FW_L1 V1.8.0

8.2. 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)	Yes