1. Description

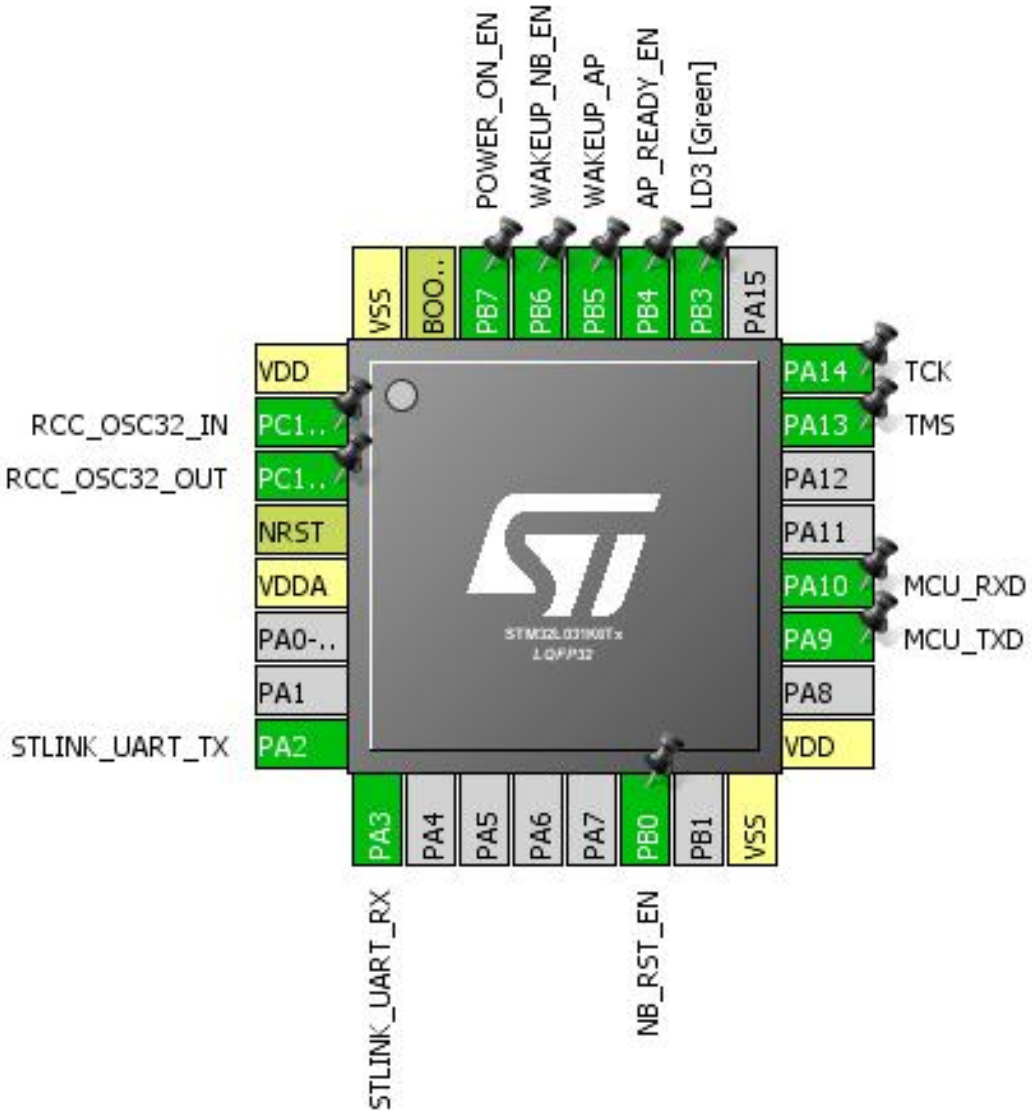
1.1. Project

Project Name	STM32L031_EM3616_NB
Board Name	NUCLEO-L031K6
Generated with:	STM32CubeMX 4.27.0
Date	10/15/2018

1.2. MCU

MCU Series	STM32L0
MCU Line	STM32L0x1
MCU name	STM32L031K6Tx
MCU Package	LQFP32
MCU Pin number	32

2. Pinout Configuration

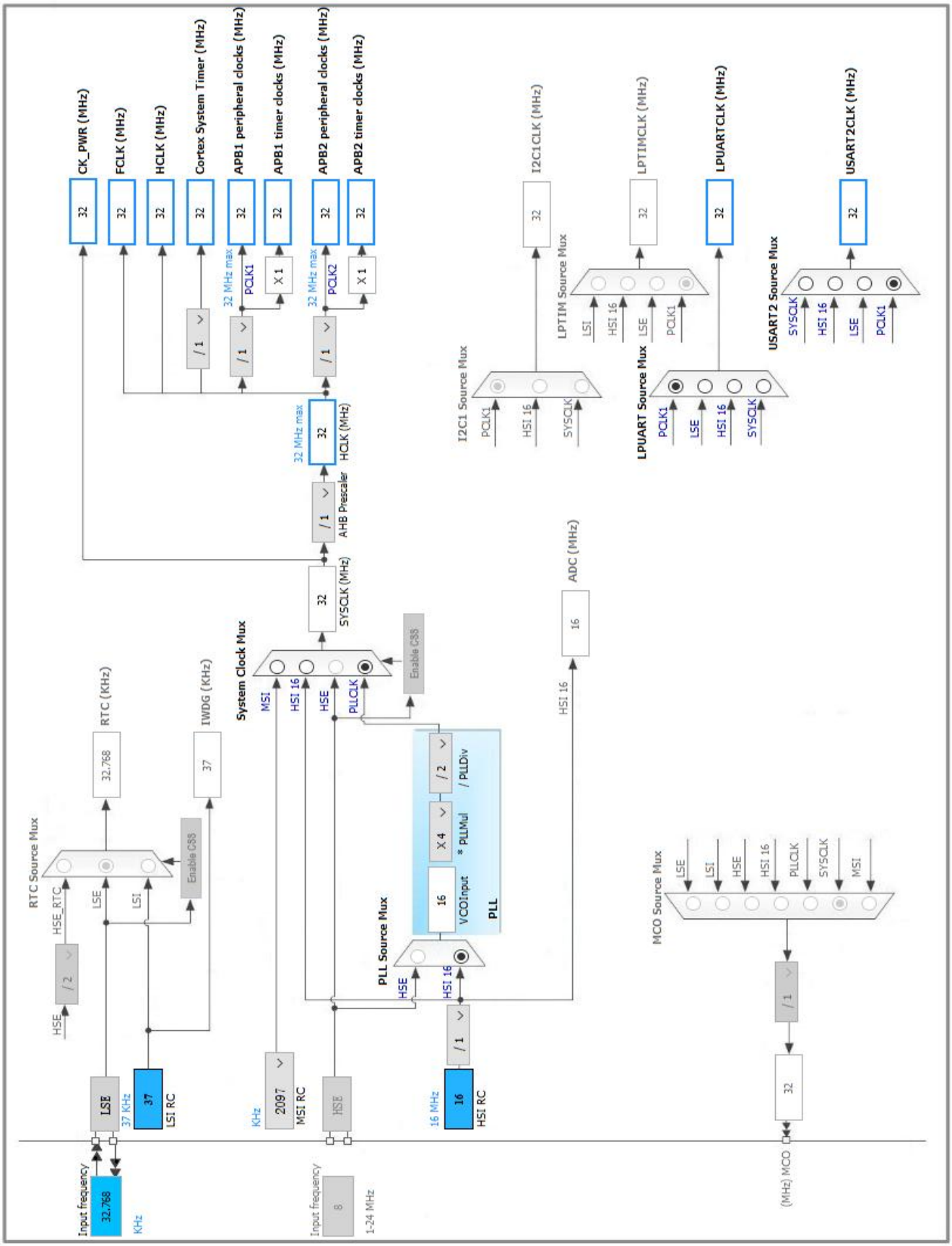


3. Pins Configuration

Pin Number LQFP32	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VDD	Power		
2	PC14-OSC32_IN	I/O	RCC_OSC32_IN	
3	PC15-OSC32_OUT	I/O	RCC_OSC32_OUT	
4	NRST	Reset		
5	VDDA	Power		
8	PA2	I/O	LPUART1_TX	STLINK_UART_TX
9	PA3	I/O	LPUART1_RX	STLINK_UART_RX
14	PB0 *	I/O	GPIO_Output	NB_RST_EN
16	VSS	Power		
17	VDD	Power		
19	PA9	I/O	USART2_TX	MCU_TXD
20	PA10	I/O	USART2_RX	MCU_RXD
23	PA13	I/O	SYS_SWDIO	TMS
24	PA14	I/O	SYS_SWCLK	TCK
26	PB3 *	I/O	GPIO_Output	LD3 [Green]
27	PB4 *	I/O	GPIO_Output	AP_READY_EN
28	PB5 *	I/O	GPIO_Output	WAKEUP_AP
29	PB6 *	I/O	GPIO_Output	WAKEUP_NB_EN
30	PB7 *	I/O	GPIO_Output	POWER_ON_EN
31	BOOT0	Boot		
32	VSS	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. LPUART1

Mode: Asynchronous

5.1.1. Parameter Settings:

Basic Parameters:

Baud Rate	**115200 ***
Word Length	**8 Bits (including Parity) ***
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	**Transmit Only ***
Single Sample	Disable

Advanced Features:

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

5.2. RCC

Low Speed Clock (LSE) : Crystal/Ceramic Resonator

5.2.1. Parameter Settings:

System Parameters:

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

RCC Parameters:

HSI Calibration Value	16
MSI Calibration Value	0
HSE Startup Timout Value (ms)	100
LSE Startup Timout Value (ms)	5000

Power Parameters:

Power Regulator Voltage Scale	Power Regulator Voltage Scale 1

5.3. SYS

mode: Debug Serial Wire

Timebase Source: SysTick

5.4. USART2

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
LPUART1	PA2	LPUART1_TX	Alternate Function Push Pull	No pull-up and no pull-down	**Medium ***	STLINK_UART_TX
	PA3	LPUART1_RX	Alternate Function Push Pull	No pull-up and no pull-down	**Medium ***	STLINK_UART_RX
RCC	PC14-OSC32_IN	RCC_OSC32_IN	n/a	n/a	n/a	
	PC15-OSC32_OUT	RCC_OSC32_OUT	n/a	n/a	n/a	
SYS	PA13	SYS_SWDIO	n/a	n/a	n/a	TMS
	PA14	SYS_SWCLK	n/a	n/a	n/a	TCK
USART2	PA9	USART2_TX	Alternate Function Push Pull	No pull-up and no pull-down	**Medium ***	MCU_TXD
	PA10	USART2_RX	Alternate Function Push Pull	No pull-up and no pull-down	**Medium ***	MCU_RXD
GPIO	PB0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	NB_RST_EN
	PB3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LD3 [Green]
	PB4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	AP_READY_EN
	PB5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	WAKEUP_AP
	PB6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	WAKEUP_NB_EN
	PB7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	POWER_ON_EN

6.2. DMA configuration

DMA request	Stream	Direction	Priority
USART2_RX	DMA1_Channel5	Peripheral To Memory	Low
LPUART1_TX	DMA1_Channel2	Memory To Peripheral	**High ***
USART2_TX	DMA1_Channel4	Memory To Peripheral	**Medium ***

USART2_RX: DMA1_Channel5 DMA request Settings:

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

LPUART1_TX: DMA1_Channel2 DMA request Settings:

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

USART2_TX: DMA1_Channel4 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 channel 3 interrupts	true	0	0
DMA1 channel 4, channel 5, channel 6 and channel 7 interrupts	true	0	0
USART2 global interrupt / USART2 wake-up interrupt through EXTI line 26	true	2	0
AES and LPUART1 interrupts / LPUART1 wake-up interrupt through EXTI line 28	true	1	0
PVD interrupt through EXTI line 16	unused		
Flash and EEPROM global interrupt	unused		
RCC global interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32L0
Line	STM32L0x1
MCU	STM32L031K6Tx
Datasheet	027063_Rev4

7.2. Parameter Selection

Temperature	25
Vdd	3.0

8. Software Project

8.1. Project Settings

Name	Value
Project Name	STM32L031_EM3616_NB
Project Folder	C:\Users\Simon\Desktop\STM32L031_ME3616\STM32L031_EM3616_NB
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_L0 V1.10.0

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	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

9. Software Pack Report