1. Description

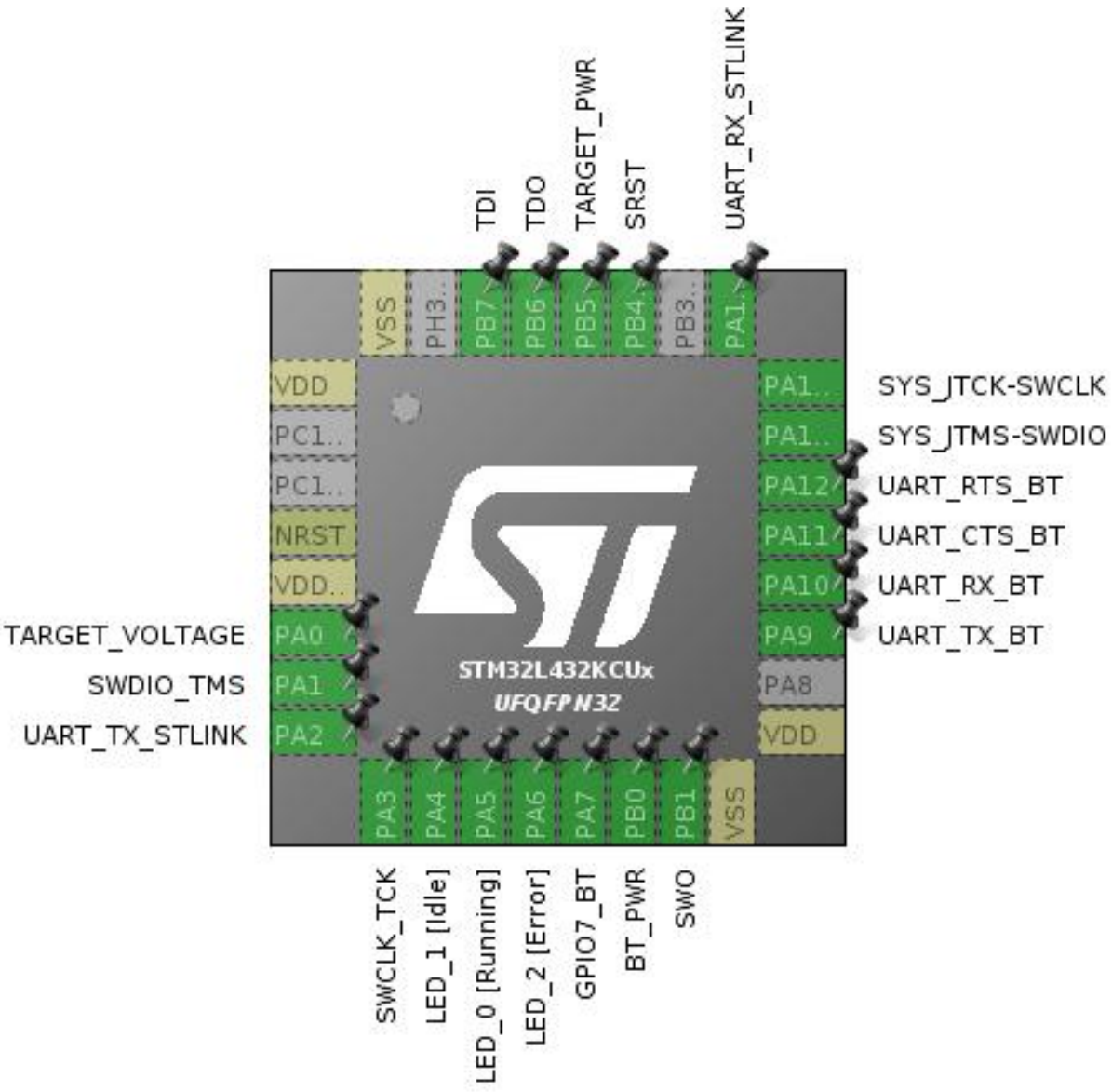
1.1. Project

Project Name	blueProbe
Board Name	NUCLEO-L432KC
Generated with:	STM32CubeMX 4.22.1
Date	10/01/2017

1.2. MCU

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

2. Pinout Configuration

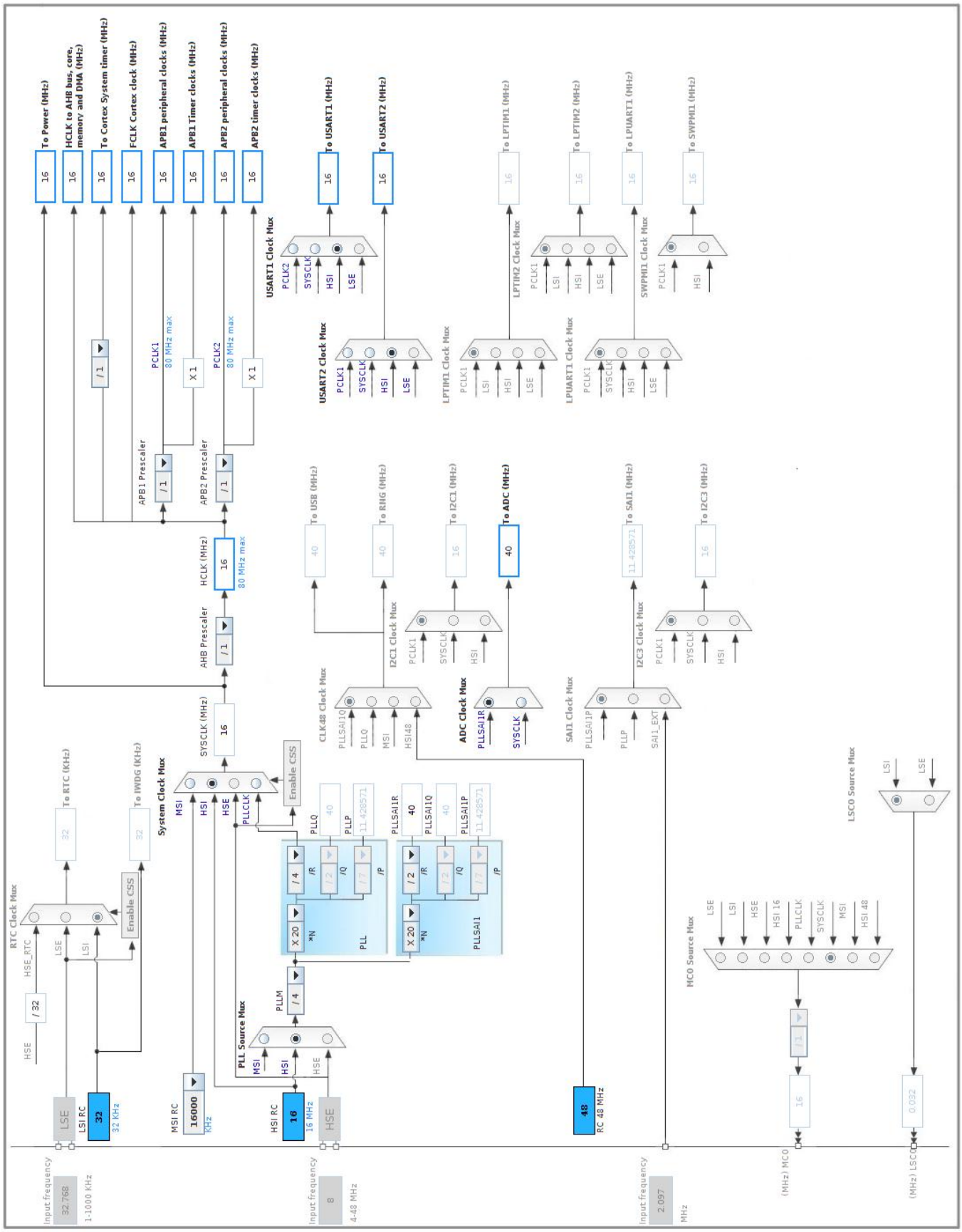


3. Pins Configuration

Pin Number UFQFPN32	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VDD	Power		
4	NRST	Reset		
5	VDDA/VREF+	Power		
6	PA0	I/O	ADC1_IN5	TARGET_VOLTAGE
7	PA1 *	I/O	GPIO_Output	SWDIO_TMS
8	PA2	I/O	USART2_TX	UART_TX_STLINK
9	PA3 *	I/O	GPIO_Output	SWCLK_TCK
10	PA4 *	I/O	GPIO_Output	LED_1 [Idle]
11	PA5 *	I/O	GPIO_Output	LED_0 [Running]
12	PA6 *	I/O	GPIO_Output	LED_2 [Error]
13	PA7 *	I/O	GPIO_Input	GPIO7_BT
14	PB0 *	I/O	GPIO_Output	BT_PWR
15	PB1 *	I/O	GPIO_Input	SWO
16	VSS	Power		
17	VDD	Power		
19	PA9	I/O	USART1_TX	UART_TX_BT
20	PA10	I/O	USART1_RX	UART_RX_BT
21	PA11	I/O	USART1_CTS	UART_CTS_BT
22	PA12	I/O	USART1_RTS	UART_RTS_BT
23	PA13 (JTMS-SWDIO)	I/O	SYS_JTMS-SWDIO	
24	PA14 (JTCK-SWCLK)	I/O	SYS_JTCK-SWCLK	
25	PA15 (JTDI)	I/O	USART2_RX	UART_RX_STLINK
27	PB4 (NJTRST) *	I/O	GPIO_Output	SRST
28	PB5 *	I/O	GPIO_Output	TARGET_PWR
29	PB6 *	I/O	GPIO_Input	TDO
30	PB7 *	I/O	GPIO_Output	TDI
32	VSS	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. ADC1

IN5: IN5 Single-ended

5.1.1. Parameter Settings:

ADC_Settings:

Clock Prescaler	**Synchronous clock mode divided by 1 ***
Resolution	ADC 12-bit resolution
Data Alignment	Right alignment
Scan Conversion Mode	Disabled
Continuous Conversion Mode	Disabled
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	Disabled
End Of Conversion Selection	End of single conversion
Overrun behaviour	Overrun data preserved
Low Power Auto Wait	Disabled

ADC_Regular_ConversionMode:

Enable Regular Conversions	Enable
Enable Regular Oversampling	Disable
Number Of Conversion	1
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None
Rank	1
Channel	Channel 5
Sampling Time	2.5 Cycles
Offset Number	No offset

ADC_Injected_ConversionMode:

Enable Injected Conversions	Disable

Analog Watchdog 1:

Enable Analog WatchDog1 Mode	false

Analog Watchdog 2:

Enable Analog WatchDog2 Mode	false

Analog Watchdog 3:

Enable Analog WatchDog3 Mode	false

5.2. CRC

mode: Activated

5.2.1. Parameter Settings:

Basic Parameters:

Default Polynomial State	Enable
Default Init Value State	Enable

Advanced Parameters:

Input Data Inversion Mode	None
Output Data Inversion Mode	Disable
Input Data Format	Bytes

5.3. SYS

Debug: Serial Wire

Timebase Source: SysTick

5.4. USART1

Mode: Asynchronous

Hardware Flow Control (RS232): CTS/RTS

5.4.1. Parameter Settings:

Basic Parameters:

Baud Rate	**921600 ***
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

5.5. USART2

Mode: Asynchronous

5.5.1. Parameter Settings:

Basic Parameters:

Baud Rate	**460800 ***
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
ADC1	PA0	ADC1_IN5	Analog mode for ADC conversion	No pull-up and no pull-down	n/a	TARGET_VOLTAGE
SYS	PA13 (JTMS-SWDIO)	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14 (JTCK-SWCLK)	SYS_JTCK-SWCLK	n/a	n/a	n/a	
USART1	PA9	USART1_TX	Alternate Function Push Pull	Pull-up	**Very High ***	UART_TX_BT
	PA10	USART1_RX	Alternate Function Push Pull	Pull-up	**Very High ***	UART_RX_BT
	PA11	USART1_CTS	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	UART_CTS_BT
	PA12	USART1_RTS	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	UART_RTS_BT
USART2	PA2	USART2_TX	Alternate Function Push Pull	Pull-up	**Very High ***	UART_TX_STLINK
	PA15 (JTDI)	USART2_RX	Alternate Function Push Pull	Pull-up	**Very High ***	UART_RX_STLINK
GPIO	PA1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**Very High ***	SWDIO_TMS
	PA3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**Very High ***	SWCLK_TCK
	PA4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**Very High ***	LED_1 [Idle]
	PA5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**Very High ***	LED_0 [Running]
	PA6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**Very High ***	LED_2 [Error]
	PA7	GPIO_Input	Input mode	No pull-up and no pull-down	**n/a**	GPIO7_BT
	PB0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	BT_PWR
	PB1	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SWO

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PB4 (NJTRST)	GPIO_Output	**Output Open Drain ***	No pull-up and no pull-down	**Very High ***	SRST
	PB5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**Very High ***	TARGET_PWR
	PB6	GPIO_Input	Input mode	No pull-up and no pull-down	**n/a**	TDO
	PB7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**Very High ***	TDI

6.2. DMA configuration

DMA request	Stream	Direction	Priority
USART2_TX	DMA1_Channel7	Memory To Peripheral	**Very High ***
USART2_RX	DMA1_Channel6	Peripheral To Memory	**Very High ***
USART1_RX	DMA1_Channel5	Peripheral To Memory	**Very High ***
USART1_TX	DMA1_Channel4	Memory To Peripheral	**Very High ***

USART2_TX: DMA1_Channel7 DMA request Settings:

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

USART2_RX: DMA1_Channel6 DMA request Settings:

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

USART1_RX: DMA1_Channel5 DMA request Settings:

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

USART1_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
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
DMA1 channel4 global interrupt	true	1	0
DMA1 channel5 global interrupt	true	1	0
DMA1 channel6 global interrupt	true	1	0
DMA1 channel7 global interrupt	true	1	1
USART1 global interrupt	true	1	0
USART2 global interrupt	true	1	1
PVD/PVM1/PVM2/PVM3/PVM4 interrupts through EXTI lines 16/35/36/37/38	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1 global interrupt	unused		
FPU global interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32L4
Line	STM32L4x2
MCU	STM32L432KCUx
Datasheet	028798_Rev2

7.2. Parameter Selection

Temperature	25
Vdd	3.0

8. Software Project

8.1. Project Settings

Name	Value
Project Name	blueProbe
Project Folder	/mnt/Data/Documents/workspace/blueProbe
Toolchain / IDE	Makefile
Firmware Package Name and Version	STM32Cube FW_L4 V1.9.0

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	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)	Yes