1. Description

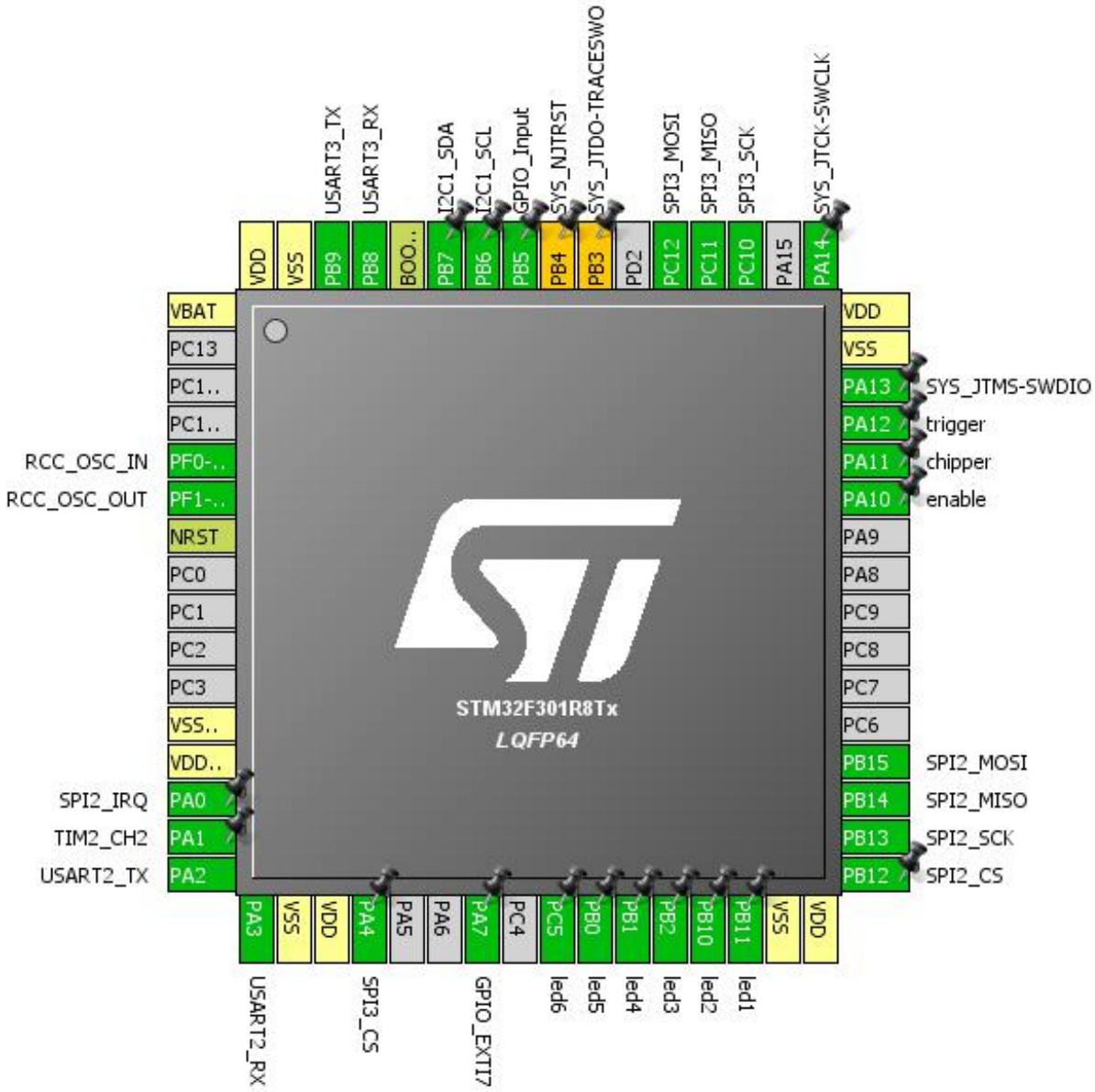
1.1. Project

Project Name	microkomop
Board Name	microkomop
Generated with:	STM32CubeMX 4.21.0
Date	10/18/2017

1.2. MCU

MCU Series	STM32F3
MCU Line	STM32F301
MCU name	STM32F301R8Tx
MCU Package	LQFP64
MCU Pin number	64

2. Pinout Configuration



3. Pins Configuration

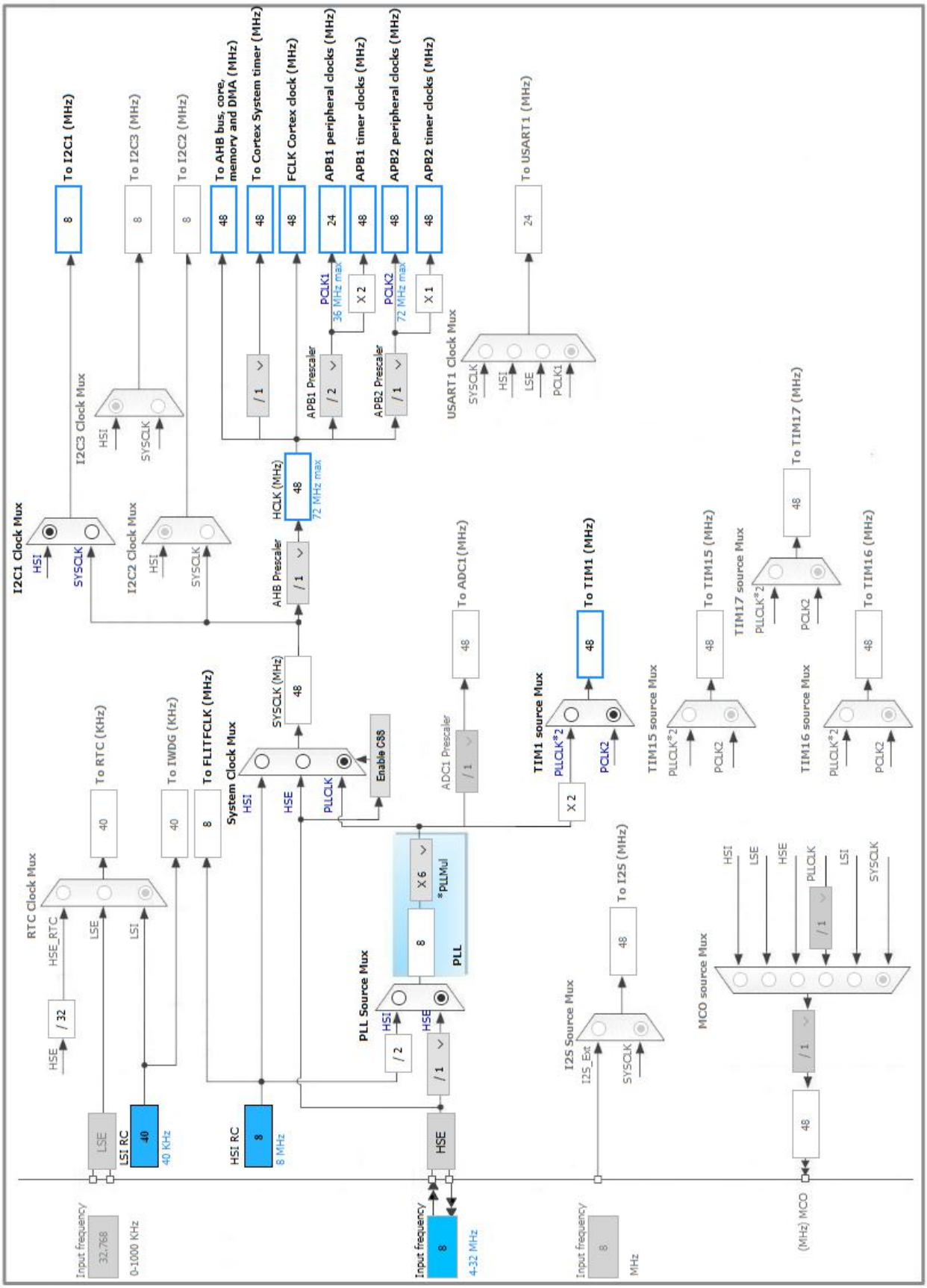
Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
5	PF0-OSC_IN	I/O	RCC_OSC_IN	
6	PF1-OSC_OUT	I/O	RCC_OSC_OUT	
7	NRST	Reset		
12	VSSA/VREF-	Power		
13	VDDA/VREF+	Power		
14	PA0 *	I/O	GPIO_Input	SPI2_IRQ
15	PA1	I/O	TIM2_CH2	
16	PA2	I/O	USART2_TX	
17	PA3	I/O	USART2_RX	
18	VSS	Power		
19	VDD	Power		
20	PA4 *	I/O	GPIO_Output	SPI3_CS
23	PA7	I/O	GPIO_EXTI7	
25	PC5 *	I/O	GPIO_Output	led6
26	PB0 *	I/O	GPIO_Output	led5
27	PB1 *	I/O	GPIO_Output	led4
28	PB2 *	I/O	GPIO_Output	led3
29	PB10 *	I/O	GPIO_Output	led2
30	PB11 *	I/O	GPIO_Output	led1
31	VSS	Power		
32	VDD	Power		
33	PB12 *	I/O	GPIO_Output	SPI2_CS
34	PB13	I/O	SPI2_SCK	
35	PB14	I/O	SPI2_MISO	
36	PB15	I/O	SPI2_MOSI	
43	PA10 *	I/O	GPIO_Output	enable
44	PA11 *	I/O	GPIO_Output	chipper
45	PA12 *	I/O	GPIO_Output	trigger
46	PA13	I/O	SYS_JTMS-SWDIO	
47	VSS	Power		
48	VDD	Power		
49	PA14	I/O	SYS_JTCK-SWCLK	
51	PC10	I/O	SPI3_SCK	
52	PC11	I/O	SPI3_MISO	
53	PC12	I/O	SPI3_MOSI	

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
55	PB3 **	I/O	SYS_JTDO-TRACESWO	
56	PB4 **	I/O	SYS_NJTRST	
57	PB5 *	I/O	GPIO_Input	
58	PB6	I/O	I2C1_SCL	
59	PB7	I/O	I2C1_SDA	
60	BOOT0	Boot		
61	PB8	I/O	USART3_RX	
62	PB9	I/O	USART3_TX	
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:

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	0x2000090E

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:

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

5.3. SPI2

Mode: Full-Duplex Master

5.3.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	**8 Bits ***
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	**12.0 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSSP Mode	Enabled
NSS Signal Type	Software

5.4. SPI3

Mode: Full-Duplex Master

5.4.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	**8 Bits ***
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	**16 ***
Baud Rate	**1.5 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled

NSSP Mode	Enabled
NSS Signal Type	Software

5.5. SYS

Debug: Serial Wire

Timebase Source: SysTick

5.6. TIM1

Clock Source : Internal Clock

5.6.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**100 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**400 ***
Internal Clock Division (CKD)	No Division
Repetition Counter (RCR - 16 bits value)	0
auto-reload preload	Disable

Trigger Output (TRGO) Parameters:

Master/Slave Mode	Disable (no sync between this TIM (Master) and its Slaves
Trigger Event Selection TRGO	Reset (UG bit from TIMx_EGR)
Trigger Event Selection TRGO2	Reset (UG bit from TIMx_EGR)

5.7. TIM2

Clock Source : Internal Clock

Channel2: PWM Generation CH2

5.7.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**48 ***
Counter Mode	Up
Counter Period (AutoReload Register - 32 bits value)	**1000 ***
Internal Clock Division (CKD)	No Division

auto-reload preload	Disable

Trigger Output (TRGO) Parameters:

Master/Slave Mode	Disable (no sync between this TIM (Master) and its Slaves
Trigger Event Selection TRGO	Reset (UG bit from TIMx_EGR)

Clear Input:

Clear Input Source	Disable

PWM Generation Channel 2:

Mode	**PWM mode 2 ***
Pulse (32 bits value)	0
Fast Mode	Disable
CH Polarity	High

5.8. USART2

Mode: Asynchronous

5.8.1. Parameter Settings:

Basic Parameters:

Baud Rate	38400
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:

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

5.9. USART3

Mode: Asynchronous

5.9.1. 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:

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	
SPI2	PB13	SPI2_SCK	Alternate Function Push Pull	No pull up pull down	**High ***	
	PB14	SPI2_MISO	Alternate Function Push Pull	No pull up pull down	**High ***	
	PB15	SPI2_MOSI	Alternate Function Push Pull	No pull up pull down	**High ***	
SPI3	PC10	SPI3_SCK	Alternate Function Push Pull	No pull up pull down	**High ***	
	PC11	SPI3_MISO	Alternate Function Push Pull	No pull up pull down	**High ***	
	PC12	SPI3_MOSI	Alternate Function Push Pull	No pull up pull down	**High ***	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
TIM2	PA1	TIM2_CH2	Alternate Function Push Pull	No pull up pull down	Low	
USART2	PA2	USART2_TX	Alternate Function Push Pull	Pull up	**High ***	
	PA3	USART2_RX	Alternate Function Push Pull	Pull up	**High ***	
USART3	PB8	USART3_RX	Alternate Function Push Pull	Pull up	**High ***	
	PB9	USART3_TX	Alternate Function Push Pull	Pull up	**High ***	
Single Mapped Signals	PB3	SYS_JTDO-TRACESWO	n/a	n/a	n/a	
	PB4	SYS_NJTRST	n/a	n/a	n/a	
GPIO	PA0	GPIO_Input	Input mode	No pull up pull down	n/a	SPI2_IRQ
	PA4	GPIO_Output	Output Push Pull	No pull up pull down	Low	SPI3_CS
	PA7	GPIO_EXTI7	**External Interrupt Mode with Falling edge trigger detection**	No pull up pull down	n/a	
	PC5	GPIO_Output	Output Push Pull	No pull up pull down	Low	led6
	PB0	GPIO_Output	Output Push Pull	No pull up pull down	Low	led5
	PB1	GPIO_Output	Output Push Pull	No pull up pull down	Low	led4

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PB2	GPIO_Output	Output Push Pull	No pull up pull down	Low	led3
	PB10	GPIO_Output	Output Push Pull	No pull up pull down	Low	led2
	PB11	GPIO_Output	Output Push Pull	No pull up pull down	Low	led1
	PB12	GPIO_Output	Output Push Pull	No pull up pull down	Low	SPI2_CS
	PA10	GPIO_Output	Output Push Pull	No pull up pull down	Low	enable
	PA11	GPIO_Output	Output Push Pull	No pull up pull down	Low	chipper
	PA12	GPIO_Output	Output Push Pull	No pull up pull down	Low	trigger
	PB5	GPIO_Input	Input mode	No pull up pull down	n/a	

6.2. DMA configuration

nothing configured in DMA service

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
EXTI line[9:5] interrupts	true	1	0
TIM1 update and TIM16 interrupts	true	0	0
USART3 global interrupt	true	0	0
PVD interrupt through EXTI line16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
TIM1 break and TIM15 interrupts	unused		
TIM1 trigger, commutation and TIM17 interrupts	unused		
TIM1 capture compare interrupt	unused		
TIM2 global interrupt	unused		
I2C1 event global interrupt / I2C1 wake-up interrupt through EXTI line 23	unused		
I2C1 error interrupt	unused		
SPI2 global interrupt	unused		
USART2 global interrupt	unused		
SPI3 global interrupt	unused		
Floating point unit interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F3
Line	STM32F301
MCU	STM32F301R8Tx
Datasheet	025146_Rev5

7.2. Parameter Selection

Temperature	25
Vdd	3.6

8. Software Project

8.1. Project Settings

Name	Value
Project Name	microkomop
Project Folder	D:\Documents\STM\microkomop
Toolchain / IDE	SW4STM32
Firmware Package Name and Version	STM32Cube FW_F3 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	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