1. Description

1.1. Project

Project Name	stm32f103c8t6
Board Name	stm32f103c8t6
Generated with:	STM32CubeMX 4.12.0
Date	01/24/2016

1.2. MCU

|	
MCU Series	STM32F1
MCU Line	STM32F103
MCU name	STM32F103C8Tx
MCU Package	LQFP48
MCU Pin number	48

2. Pinout Configuration
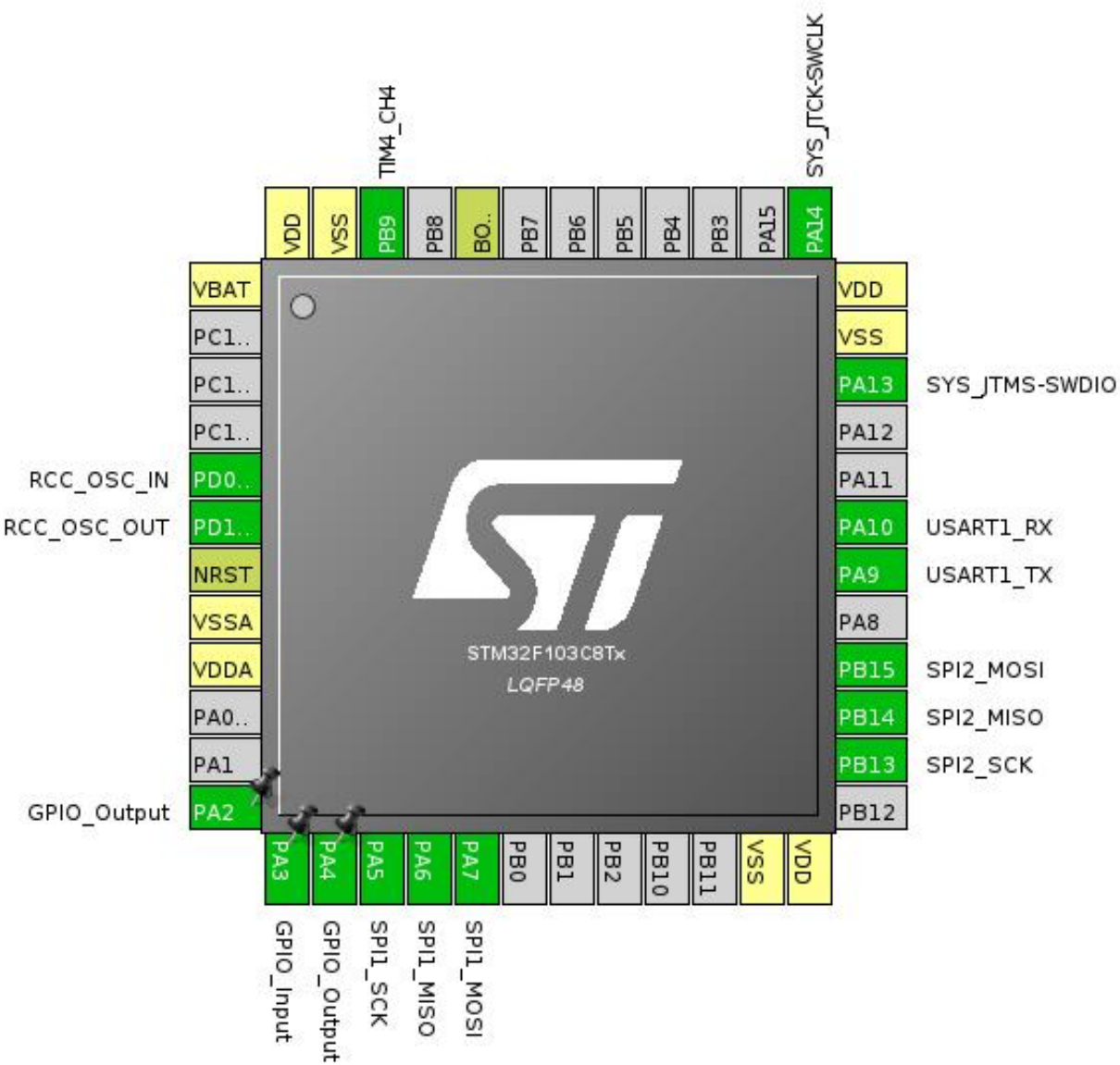
3. Pins Configuration

Pin Number LQFP48	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
5	PD0-OSC_IN	I/O	RCC_OSC_IN	
6	PD1-OSC_OUT	I/O	RCC_OSC_OUT	
7	NRST	Reset		
8	VSSA	Power		
9	VDDA	Power		
12	PA2 *	I/O	GPIO_Output	
13	PA3 *	I/O	GPIO_Input	
14	PA4 *	I/O	GPIO_Output	
15	PA5	I/O	SPI1_SCK	
16	PA6	I/O	SPI1_MISO	
17	PA7	I/O	SPI1_MOSI	
23	VSS	Power		
24	VDD	Power		
26	PB13	I/O	SPI2_SCK	
27	PB14	I/O	SPI2_MISO	
28	PB15	I/O	SPI2_MOSI	
30	PA9	I/O	USART1_TX	
31	PA10	I/O	USART1_RX	
34	PA13	I/O	SYS_JTMS-SWDIO	
35	VSS	Power		
36	VDD	Power		
37	PA14	I/O	SYS_JTCK-SWCLK	
44	BOOT0	Boot		
46	PB9	I/O	TIM4_CH4	
47	VSS	Power		
48	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration
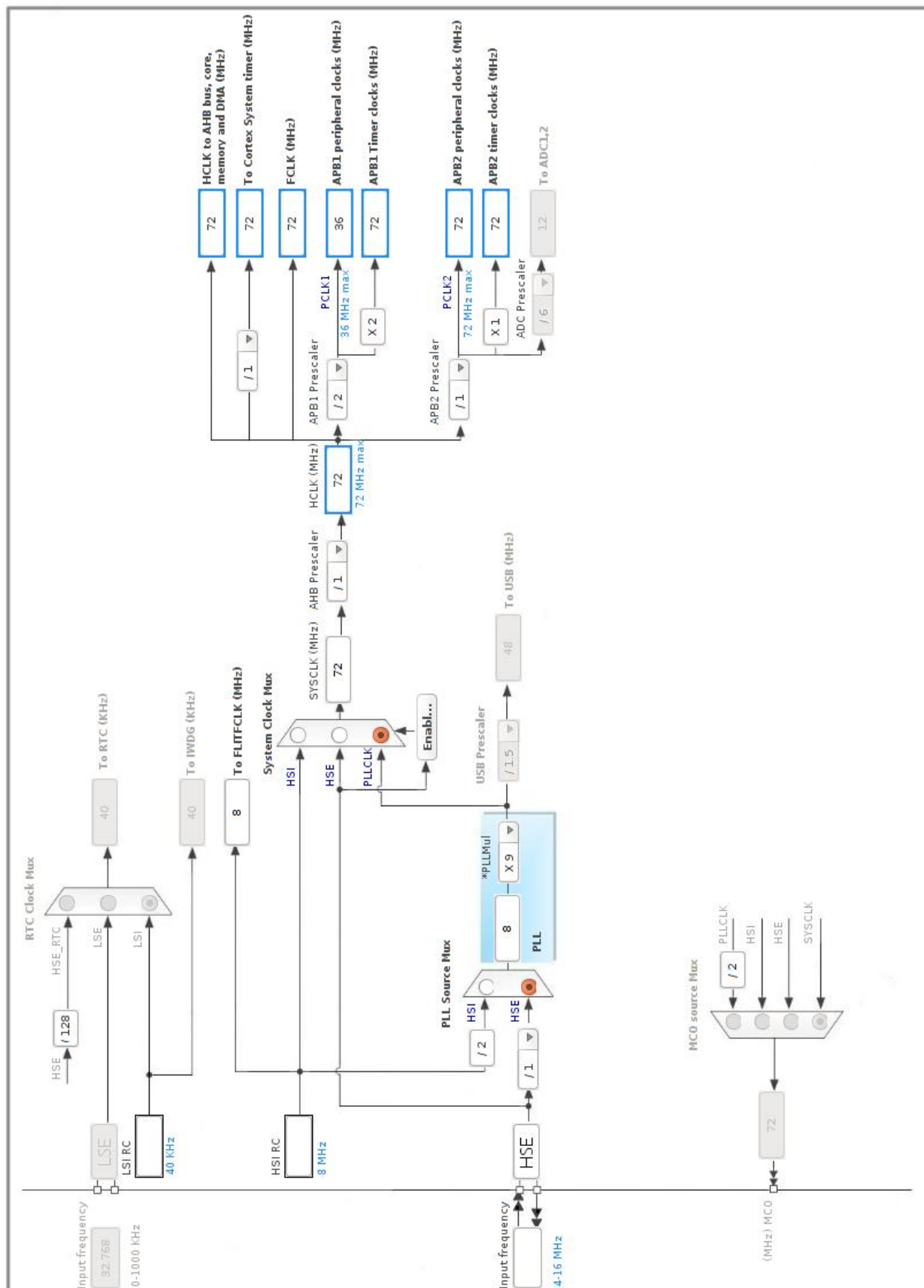
5. IPs and Middleware Configuration

5.1. CRC

mode: Activated

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)	2 WS (3 CPU cycle)

RCC Parameters:

HSI Calibration Value	16

5.3. SPI1

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)	**4 ***
Baud Rate	**18.0 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

5.4. SPI2

Mode: Full-Duplex Slave

5.4.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	**18.0 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

5.5. SYS

Debug: Serial-Wire

5.6. TIM3

mode: Clock Source

5.6.1. Parameter Settings:

Counter Settings:

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

Trigger Output (TRGO) Parameters:

Master/Slave Mode	Disable (no sync between this TIM (Master) and its Slaves
Trigger Event Selection	**Update Event ***

5.7. TIM4

mode: Clock Source

Channel4: PWM Generation CH4

5.7.1. Parameter Settings:

Counter Settings:

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

Trigger Output (TRGO) Parameters:

Master/Slave Mode	Disable (no sync between this TIM (Master) and its Slaves
Trigger Event Selection	**Compare Pulse (OC1) ***

PWM Generation Channel 4:

Mode	PWM mode 1
Pulse (16 bits value)	**pwm_pulse_width ***
Fast Mode	Disable
CH Polarity	High

5.8. USART1

Mode: Asynchronous

5.8.1. 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

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* User modified value

6. System Configuration

6.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
RCC	PD0-OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PD1-OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
SPI1	PA5	SPI1_SCK	Alternate Function Push Pull	n/a	**High ***	
	PA6	SPI1_MISO	Input mode	No pull-up and no pull-down	**n/a**	
	PA7	SPI1_MOSI	Alternate Function Push Pull	n/a	**High ***	
SPI2	PB13	SPI2_SCK	Input mode	No pull-up and no pull-down	n/a	
	PB14	SPI2_MISO	Alternate Function Push Pull	n/a	**High ***	
	PB15	SPI2_MOSI	Input mode	No pull-up and no pull-down	**n/a**	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
TIM4	PB9	TIM4_CH4	Alternate Function Push Pull	n/a	**High ***	
USART1	PA9	USART1_TX	Alternate Function Push Pull	n/a	**High ***	
	PA10	USART1_RX	Input mode	No pull-up and no pull-down	**n/a**	
GPIO	PA2	GPIO_Output	Output Push Pull	n/a	Low	
	PA3	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PA4	GPIO_Output	Output Push Pull	n/a	**High ***	

6.2. DMA configuration

DMA request	Stream	Direction	Priority
SPI1_RX	DMA1_Channel2	Peripheral To Memory	Low
SPI1_TX	DMA1_Channel3	Memory To Peripheral	Low

SPI1_RX: DMA1_Channel2 DMA request Settings:

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

SPI1_TX: DMA1_Channel3 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
System tick timer	true	0	0
DMA1 channel2 global interrupt	true	0	0
DMA1 channel3 global interrupt	true	0	0
TIM3 global interrupt	true	0	0
TIM4 global interrupt	true	0	0
SPI1 global interrupt	true	0	0
USART1 global interrupt	true	0	0
Non maskable interrupt	unused		
Hard fault interrupt	unused		
Memory management fault	unused		
Prefetch fault, memory access fault	unused		
Undefined instruction or illegal state	unused		
Debug monitor	unused		
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
SPI2 global interrupt	unused		

* User modified value

7. Power Plugin report

7.1. Microcontroller Selection

Series	STM32F1
Line	STM32F103
MCU	STM32F103C8Tx
Datasheet	13587_Rev17

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	stm32f103c8t6
Project Folder	/home/nikolay/work/dev/auvir/auvir_embed/mocap/transmitter/stm32f103
Toolchain / IDE	SW4STM32
Firmware Package Name and Version	STM32Cube FW_F1 V1.2.0

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)	No