1. Description

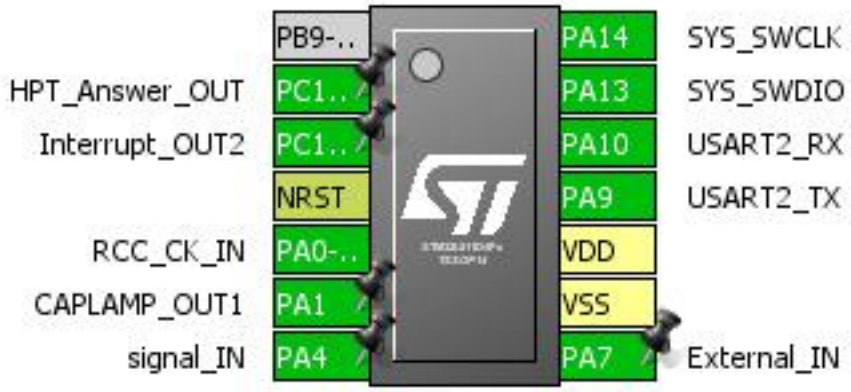
1.1. Project

Project Name	reciev
Board Name	reciev.07
Generated with:	STM32CubeMX 4.22.0
Date	11/24/2017

1.2. MCU

MCU Series	STM32L0
MCU Line	STM32L0x1
MCU name	STM32L011D4Px
MCU Package	TSSOP14
MCU Pin number	14

2. Pinout Configuration

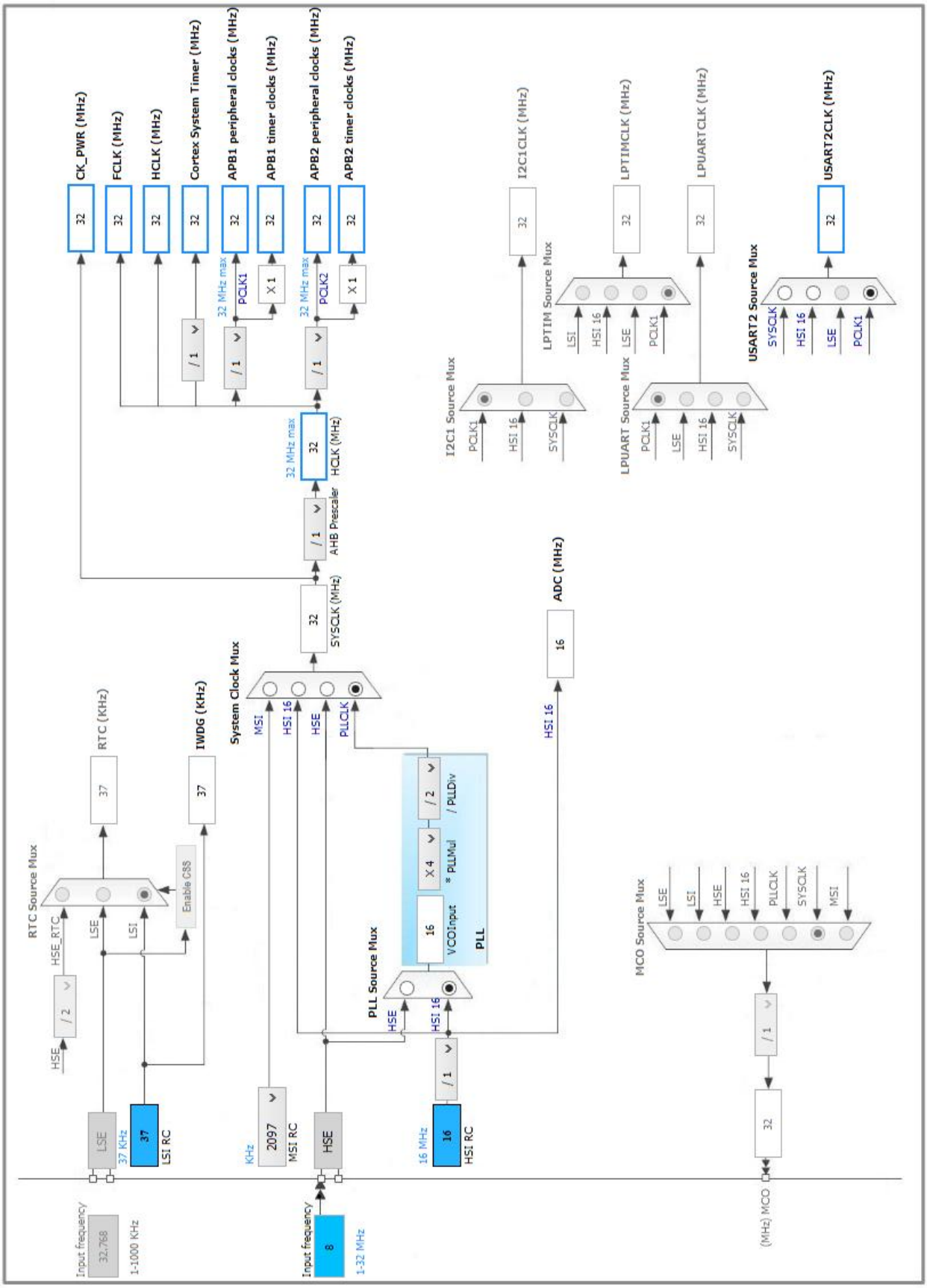


3. Pins Configuration

Pin Number TSSOP14	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
2	PC14-OSC32_IN *	I/O	GPIO_Output	HPT_Answer_OUT
3	PC15-OSC32_OUT *	I/O	GPIO_Output	Interrupt_OUT2
4	NRST	Reset		
5	PA0-CK_IN	I/O	RCC_CK_IN	
6	PA1	I/O	TIM2_CH2	CAPLAMP_OUT1
7	PA4	I/O	ADC_IN4	signal_IN
8	PA7	I/O	GPIO_EXTI7	External_IN
9	VSS	Power		
10	VDD	Power		
11	PA9	I/O	USART2_TX	
12	PA10	I/O	USART2_RX	
13	PA13	I/O	SYS_SWDIO	
14	PA14	I/O	SYS_SWCLK	

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. ADC

mode: IN4

5.1.1. Parameter Settings:

ADC_Settings:

Clock Prescaler	**Asynchronous clock mode divided by 1 ***
Resolution	ADC 12-bit resolution
Data Alignment	Right alignment
Scan Direction	Forward
Continuous Conversion Mode	**Enabled ***
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	**Enabled ***
End Of Conversion Selection	End of single conversion
Overrun behaviour	Overrun data preserved
Low Power Auto Wait	Disabled
Low Frequency Mode	Disabled
Auto Off	Disabled
Oversampling Mode	**Enabled ***
Right Bit Shift	No bit shift
Ratio	**Oversampling ratio 16x ***
Triggered Mode	Single trigger

ADC_Regular_ConversionMode:

Sampling Time	**7.5 Cycles ***
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None

WatchDog:

Enable Analog WatchDog 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	**HalfWords ***

5.3. IWDG

mode: Activated

5.3.1. Parameter Settings:

Watchdog Clocking:

IWDG counter clock prescaler	4
IWDG window value	4095
IWDG down-counter reload value	4095

5.4. RCC

mode: High Speed Clock (HSE)

5.4.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Buffer Cache	Enabled
Prefetch	Disabled
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

5.5. SYS

mode: Debug Serial Wire

Timebase Source: SysTick

5.6. TIM2

Clock Source : Internal Clock

Channel2: PWM Generation CH2

5.6.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**8000-1 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**1000 ***
Internal Clock Division (CKD)	**Division by 4 ***

Trigger Output (TRGO) Parameters:

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

PWM Generation Channel 2:

Mode	PWM mode 1
Pulse (16 bits value)	0
Fast Mode	Disable
CH Polarity	High

5.7. TIM21

Clock Source : Internal Clock

5.7.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**2-1 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**2500 ***

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	Reset (UG bit from TIMx_EGR)

5.8. USART2

Mode: Asynchronous

5.8.1. Parameter Settings:

Basic Parameters:

Baud Rate	**512000 ***
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
ADC	PA4	ADC_IN4	Analog mode	No pull-up and no pull-down	n/a	signal_IN
RCC	PA0-CK_IN	RCC_CK_IN	n/a	n/a	n/a	
SYS	PA13	SYS_SWDIO	n/a	n/a	n/a	
	PA14	SYS_SWCLK	n/a	n/a	n/a	
TIM2	PA1	TIM2_CH2	Alternate Function Push Pull	**Pull-down ***	Low	CAPLAMP_OUT1
USART2	PA9	USART2_TX	Alternate Function Push Pull	Pull-up	**Very High ***	
	PA10	USART2_RX	Alternate Function Push Pull	Pull-up	**Very High ***	
GPIO	PC14-OSC32_IN	GPIO_Output	Output Push Pull	**Pull-up ***	Low	HPT_Answer_OUT
	PC15-OSC32_OUT	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Interrupt_OUT2
	PA7	GPIO_EXTI7	**External Interrupt Mode with Falling edge trigger detection**	No pull-up and no pull-down	n/a	External_IN

6.2. DMA configuration

DMA request	Stream	Direction	Priority
ADC	DMA1_Channel1	Peripheral To Memory	Low
USART2_TX	DMA1_Channel2	Memory To Peripheral	Low
USART2_RX	DMA1_Channel3	Peripheral To Memory	Low

ADC: DMA1_Channel1 DMA request Settings:

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

USART2_TX: DMA1_Channel2 DMA request Settings:

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

USART2_RX: DMA1_Channel3 DMA request Settings:

Mode:	**Circular ***
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 1 interrupt	true	0	0
DMA1 channel 2 and channel 3 interrupts	true	0	0
ADC1, COMP1 and COMP2 interrupts (COMP interrupts through EXTI lines 21 and 22)	true	0	0
TIM2 global interrupt	true	0	0
TIM21 global interrupt	true	0	0
USART2 global interrupt / USART2 wake-up interrupt through EXTI line 26	true	0	0
PVD interrupt through EXTI line 16	unused		
Flash and EEPROM global interrupt	unused		
RCC global interrupt	unused		
EXTI line 4 to 15 interrupts	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32L0
Line	STM32L0x1
MCU	STM32L011D4Px
Datasheet	027973_Rev4

7.2. Parameter Selection

Temperature	25
Vdd	null

8. Software Project

8.1. Project Settings

Name	Value
Project Name	reciev.07
Project Folder	C:\Users\KAArtemev\Desktop\\\reciev.07
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_L0 V1.7.0

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	Yes
Delete previously generated files when not re-generated	Yes
Set all free pins as analog (to optimize the power consumption)	Yes