1. Description

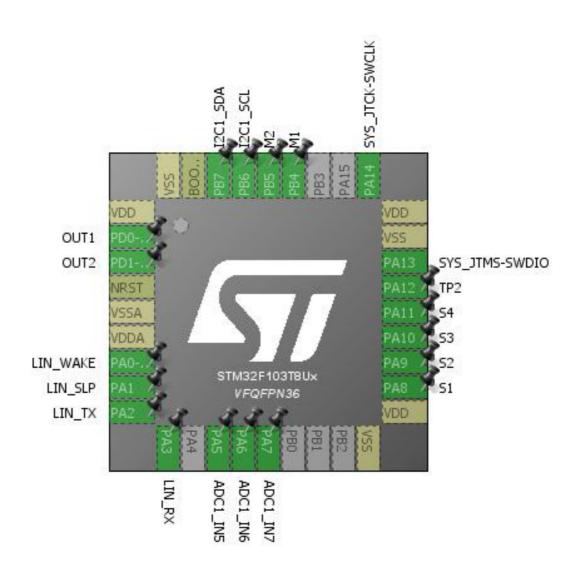
1.1. Project

Project Name	LegoLin-rx
Board Name	LegoLin-rx
Generated with:	STM32CubeMX 4.20.0
Date	03/31/2017

1.2. MCU

MCU Series	STM32F1
MCU Line	STM32F103
MCU name	STM32F103T8Ux
MCU Package	VFQFPN36
MCU Pin number	36

2. Pinout Configuration

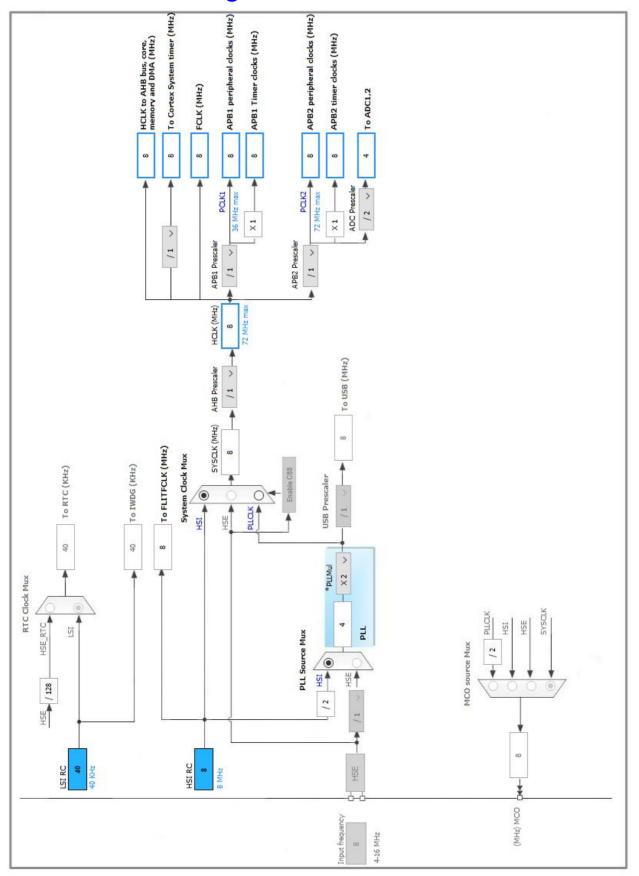


3. Pins Configuration

Pin Number VFQFPN36	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VDD	Power		
2	PD0-OSC_IN *	I/O	GPIO_Output	OUT1
3	PD1-OSC_OUT *	I/O	GPIO_Output	OUT2
4	NRST	Reset		
5	VSSA	Power		
6	VDDA	Power		
7	PA0-WKUP *	I/O	GPIO_Input	LIN_WAKE
8	PA1 *	I/O	GPIO_Input	LIN_SLP
9	PA2	I/O	USART2_TX	LIN_TX
10	PA3	I/O	USART2_RX	LIN_RX
12	PA5	I/O	ADC1_IN5	
13	PA6	I/O	ADC1_IN6	
14	PA7	I/O	ADC1_IN7	
18	VSS	Power		
19	VDD	Power		
20	PA8 *	I/O	GPIO_Output	S1
21	PA9 *	I/O	GPIO_Output	S2
22	PA10 *	I/O	GPIO_Output	S3
23	PA11 *	I/O	GPIO_Output	S4
24	PA12 *	I/O	GPIO_Output	TP2
25	PA13	I/O	SYS_JTMS-SWDIO	
26	VSS	Power		
27	VDD	Power		
28	PA14	I/O	SYS_JTCK-SWCLK	
31	PB4	I/O	TIM3_CH1	M1
32	PB5	I/O	TIM3_CH2	M2
33	PB6	I/O	I2C1_SCL	
34	PB7	I/O	I2C1_SDA	
35	воото	Boot		
36	VSS	Power		

^{*} The pin is affected with an I/O function

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. ADC1

mode: IN5 mode: IN6 mode: IN7

5.1.1. Parameter Settings:

ADCs_Common_Settings:

Mode Independent mode

ADC_Settings:

Data Alignment Right alignment

Scan Conversion Mode Disabled
Continuous Conversion Mode Disabled
Discontinuous Conversion Mode Disabled

ADC_Regular_ConversionMode:

Enable Regular Conversions Enable

Number Of Conversion 1

External Trigger Conversion Source Regular Conversion launched by software

Rank 1

Channel 6 *
Sampling Time 1.5 Cycles

ADC_Injected_ConversionMode:

Number Of Conversions 0

WatchDog:

Enable Analog WatchDog Mode false

5.2. I2C1

12C: 12C

5.2.1. Parameter Settings:

Master Features:

I2C Speed Mode Standard Mode
I2C Clock Speed (Hz) 100000

Slave Features:

Clock No Stretch Mode Disabled
Primary Address Length selection 7-bit
Dual Address Acknowledged Disabled
Primary slave address 0
General Call address detection Disabled

5.3. SYS

Debug: Serial Wire

Timebase Source: SysTick

5.4. TIM3

Channel1: PWM Generation CH1 Channel2: PWM Generation CH2

5.4.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value) 0

Counter Mode Up

Counter Period (AutoReload Register - 16 bits value) 0

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)

PWM Generation Channel 1:

Mode PWM mode 1

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

PWM Generation Channel 2:

Mode PWM mode 1

Pulse (16 bits value) 0

Fast Mode Disable CH Polarity High

5.5. USART2

Mode: LIN

5.5.1. Parameter Settings:

Basic Parameters:

Baud Rate 19200 *

Word Length 8 Bits (including Parity)

Parity None Stop Bits 1

Advanced Parameters:

Data Direction Receive and Transmit

Break Detect Length 11 Bits *

^{*} 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	PA5	ADC1_IN5	Analog mode	n/a	n/a	
	PA6	ADC1_IN6	Analog mode	n/a	n/a	
	PA7	ADC1_IN7	Analog mode	n/a	n/a	
I2C1	PB6	I2C1_SCL	Alternate Function Open Drain	n/a	High *	
	PB7	I2C1_SDA	Alternate Function Open Drain	n/a	High *	
SYS	PA13	SYS_JTMS- SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK- SWCLK	n/a	n/a	n/a	
TIM3	PB4	TIM3_CH1	Alternate Function Push Pull	n/a	Low	M1
	PB5	TIM3_CH2	Alternate Function Push Pull	n/a	Low	M2
USART2	PA2	USART2_TX	Alternate Function Push Pull	n/a	High *	LIN_TX
	PA3	USART2_RX	Input mode	No pull-up and no pull-down	n/a	LIN_RX
GPIO	PD0- OSC_IN	GPIO_Output	Output Push Pull	n/a	Low	OUT1
	PD1- OSC_OUT	GPIO_Output	Output Push Pull	n/a	Low	OUT2
	PA0-WKUP	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	LIN_WAKE
	PA1	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	LIN_SLP
	PA8	GPIO_Output	Output Push Pull	n/a	Low	S1
	PA9	GPIO_Output	Output Push Pull	n/a	Low	S2
	PA10	GPIO_Output	Output Push Pull	n/a	Low	S3
	PA11	GPIO_Output	Output Push Pull	n/a	Low	S4
	PA12	GPIO_Output	Output Push Pull	n/a	Low	TP2

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
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
USART2 global interrupt	true	0	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1 and ADC2 global interrupts	unused		
TIM3 global interrupt	unused		
I2C1 event interrupt	unused		
I2C1 error interrupt	unused		

^{*} User modified value

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F1
Line	STM32F103
MCU	STM32F103T8Ux
Datasheet	13587_Rev17

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	LegoLin-rx
Project Folder	D:\Eug\stm32-eug\LegoLin-rx
Toolchain / IDE	SW4STM32
Firmware Package Name and Version	STM32Cube FW_F1 V1.4.0

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	No
consumption)	