1. Description

1.1. Project

Project Name	test
Board Name	test
Generated with:	STM32CubeMX 4.20.1
Date	05/02/2017

1.2. MCU

MCU Series	STM32F4
MCU Line	STM32F407/417
MCU name	STM32F407ZETx
MCU Package	LQFP144
MCU Pin number	144

2. Pinout Configuration

STM32F407ZETx
LQFP144
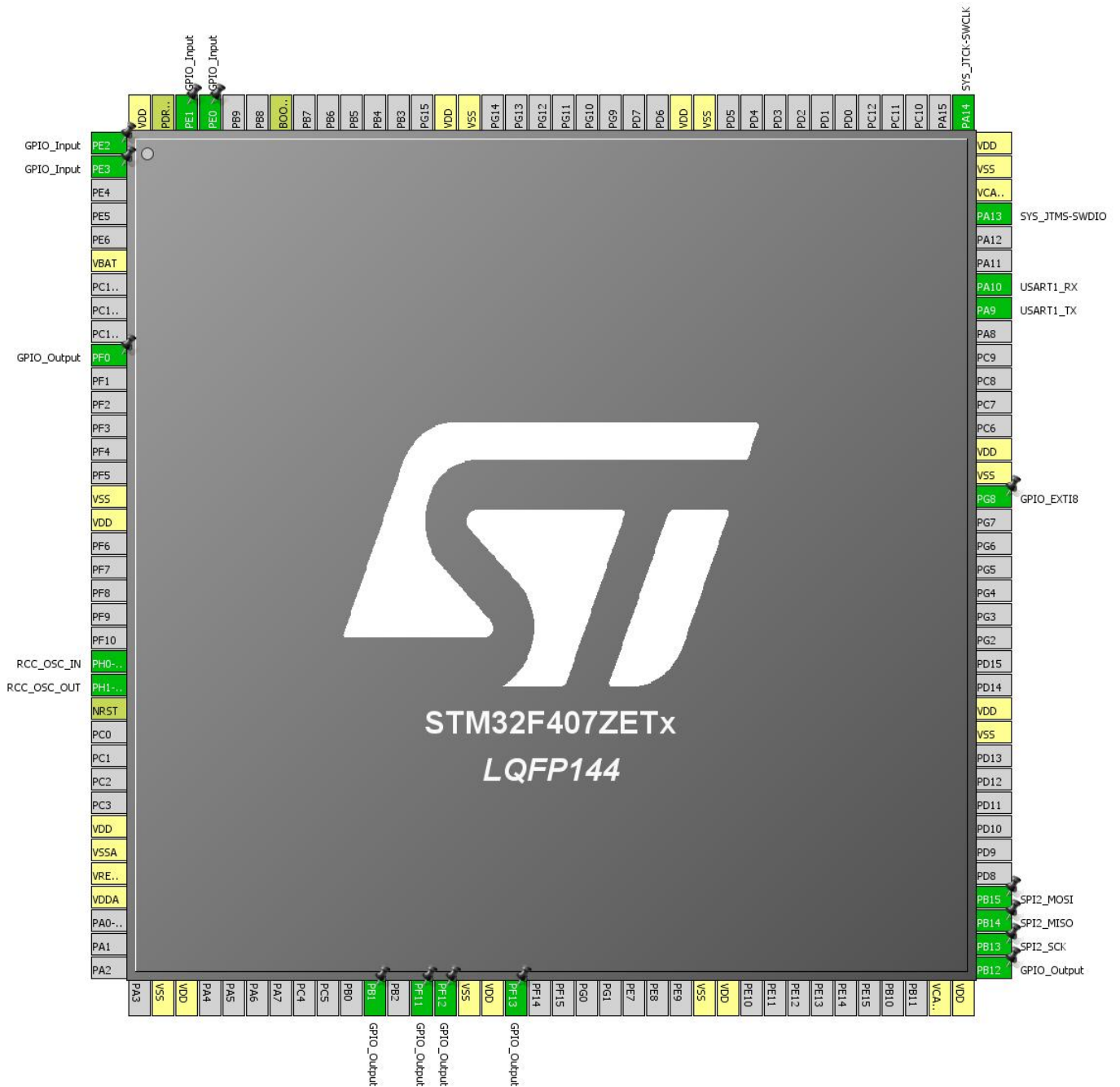
3. Pins Configuration

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	PE2 *	I/O	GPIO_Input	
2	PE3 *	I/O	GPIO_Input	
6	VBAT	Power		
10	PF0 *	I/O	GPIO_Output	
16	VSS	Power		
17	VDD	Power		
23	PH0-OSC_IN	I/O	RCC_OSC_IN	
24	PH1-OSC_OUT	I/O	RCC_OSC_OUT	
25	NRST	Reset		
30	VDD	Power		
31	VSSA	Power		
32	VREF+	Power		
33	VDDA	Power		
38	VSS	Power		
39	VDD	Power		
47	PB1 *	I/O	GPIO_Output	
49	PF11 *	I/O	GPIO_Output	
50	PF12 *	I/O	GPIO_Output	
51	VSS	Power		
52	VDD	Power		
53	PF13 *	I/O	GPIO_Output	
61	VSS	Power		
62	VDD	Power		
71	VCAP_1	Power		
72	VDD	Power		
73	PB12 *	I/O	GPIO_Output	
74	PB13	I/O	SPI2_SCK	
75	PB14	I/O	SPI2_MISO	
76	PB15	I/O	SPI2_MOSI	
83	VSS	Power		
84	VDD	Power		
93	PG8	I/O	GPIO_EXTI8	
94	VSS	Power		
95	VDD	Power		
101	PA9	I/O	USART1_TX	
102	PA10	I/O	USART1_RX	

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
105	PA13	I/O	SYS_JTMS-SWDIO	
106	VCAP_2	Power		
107	VSS	Power		
108	VDD	Power		
109	PA14	I/O	SYS_JTCK-SWCLK	
120	VSS	Power		
121	VDD	Power		
130	VSS	Power		
131	VDD	Power		
138	BOOT0	Boot		
141	PE0 *	I/O	GPIO_Input	
142	PE1 *	I/O	GPIO_Input	
143	PDR_ON	Reset		
144	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration
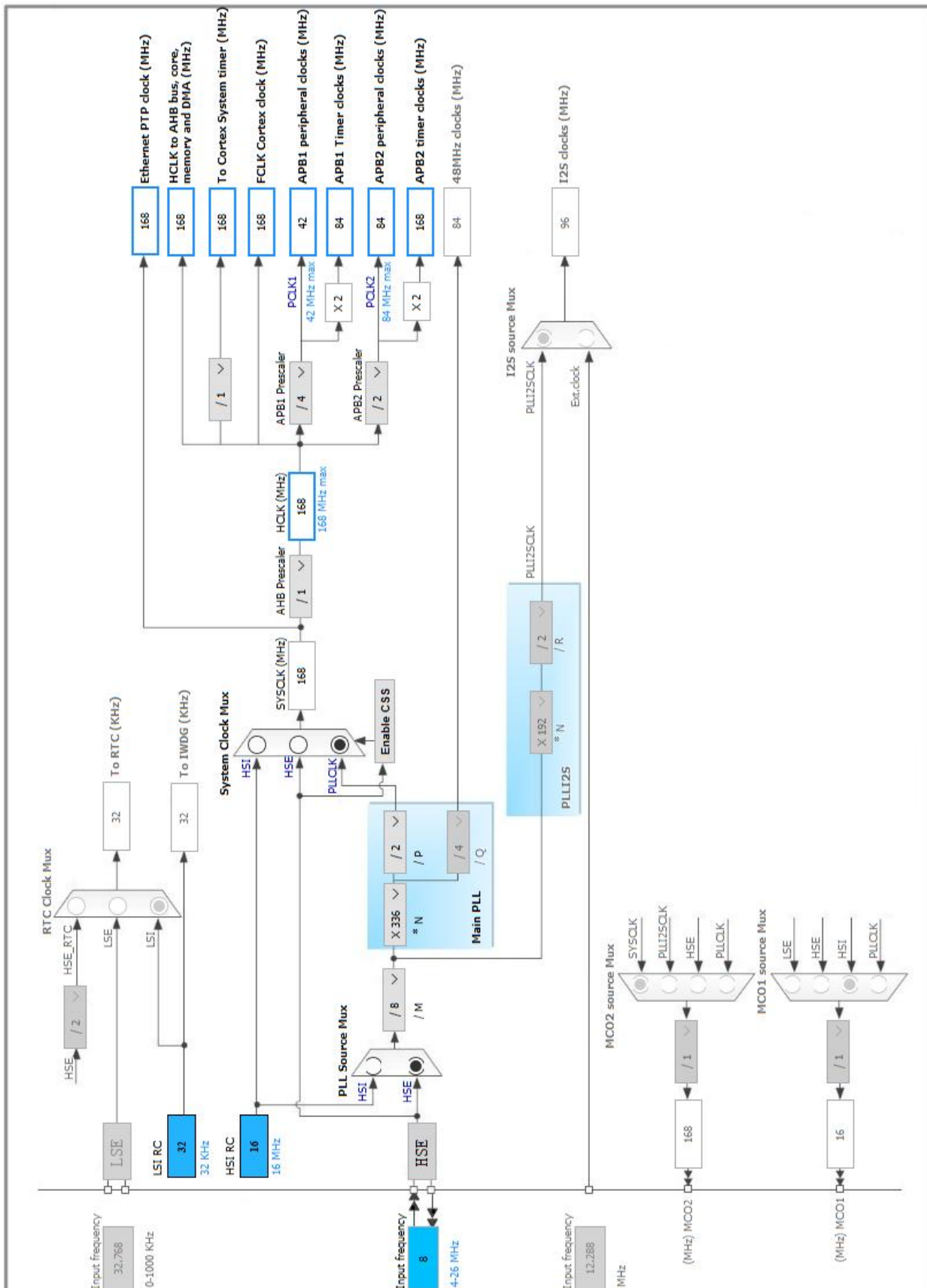
5. IPs and Middleware Configuration

5.1. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

5.1.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Instruction Cache	Enabled
Prefetch Buffer	Enabled
Data Cache	Enabled
Flash Latency(WS)	5 WS (6 CPU cycle)

RCC Parameters:

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

Power Parameters:

Power Regulatror Voltage Scale	Power Regulator Voltage Scale 1

5.2. SPI2

Mode: Full-Duplex Master

5.2.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	**21.0 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled

NSS Signal Type   Software

5.3. SYS

Debug: Serial Wire

Timebase Source: SysTick

5.4. TIM4

Clock Source   : Internal Clock

5.4.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**8399 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**999 ***
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)

5.5. TIM5

mode: Clock Source

5.5.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**83 ***
Counter Mode	Up
Counter Period (AutoReload Register - 32 bits value)	**999999 ***
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)

5.6. TIM7

mode: Activated

5.6.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**83 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**999 ***

Trigger Output (TRGO) Parameters:

Trigger Event Selection	Reset (UG bit from TIMx_EGR)

5.7. USART1

Mode: Asynchronous

5.7.1. 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

* 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	PH0-OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PH1-OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
SPI2	PB13	SPI2_SCK	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PB14	SPI2_MISO	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PB15	SPI2_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
USART1	PA9	USART1_TX	Alternate Function Push Pull	Pull-up	**Very High ***	
	PA10	USART1_RX	Alternate Function Push Pull	Pull-up	**Very High ***	
GPIO	PE2	GPIO_Input	Input mode	**Pull-up ***	n/a	
	PE3	GPIO_Input	Input mode	**Pull-up ***	n/a	
	PF0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**Very High ***	
	PB1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**Medium ***	
	PF11	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**Medium ***	
	PF12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**Medium ***	
	PF13	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**Medium ***	
	PB12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**Very High ***	
	PG8	GPIO_EXTI8	**External Interrupt Mode with Rising/Falling edge**	No pull-up and no pull-down	**n/a**	
	PE0	GPIO_Input	Input mode	**Pull-up ***	**n/a**	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PE1	GPIO_Input	Input mode	**Pull-up ***	**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
TIM4 global interrupt	true	4	0
USART1 global interrupt	true	1	0
TIM5 global interrupt	true	5	0
TIM7 global interrupt	true	7	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
EXTI line[9:5] interrupts	unused		
SPI2 global interrupt	unused		
FPU global interrupt	unused		

* User modified value

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F4
Line	STM32F407/417
MCU	STM32F407ZETx
Datasheet	022152_Rev7

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	test
Project Folder	E:\stm32f4072\test
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_F4 V1.16.0

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	No
Delete previously generated files when not re-generated	Yes
Set all free pins as analog (to optimize the power consumption)	Yes