

## 1. Description

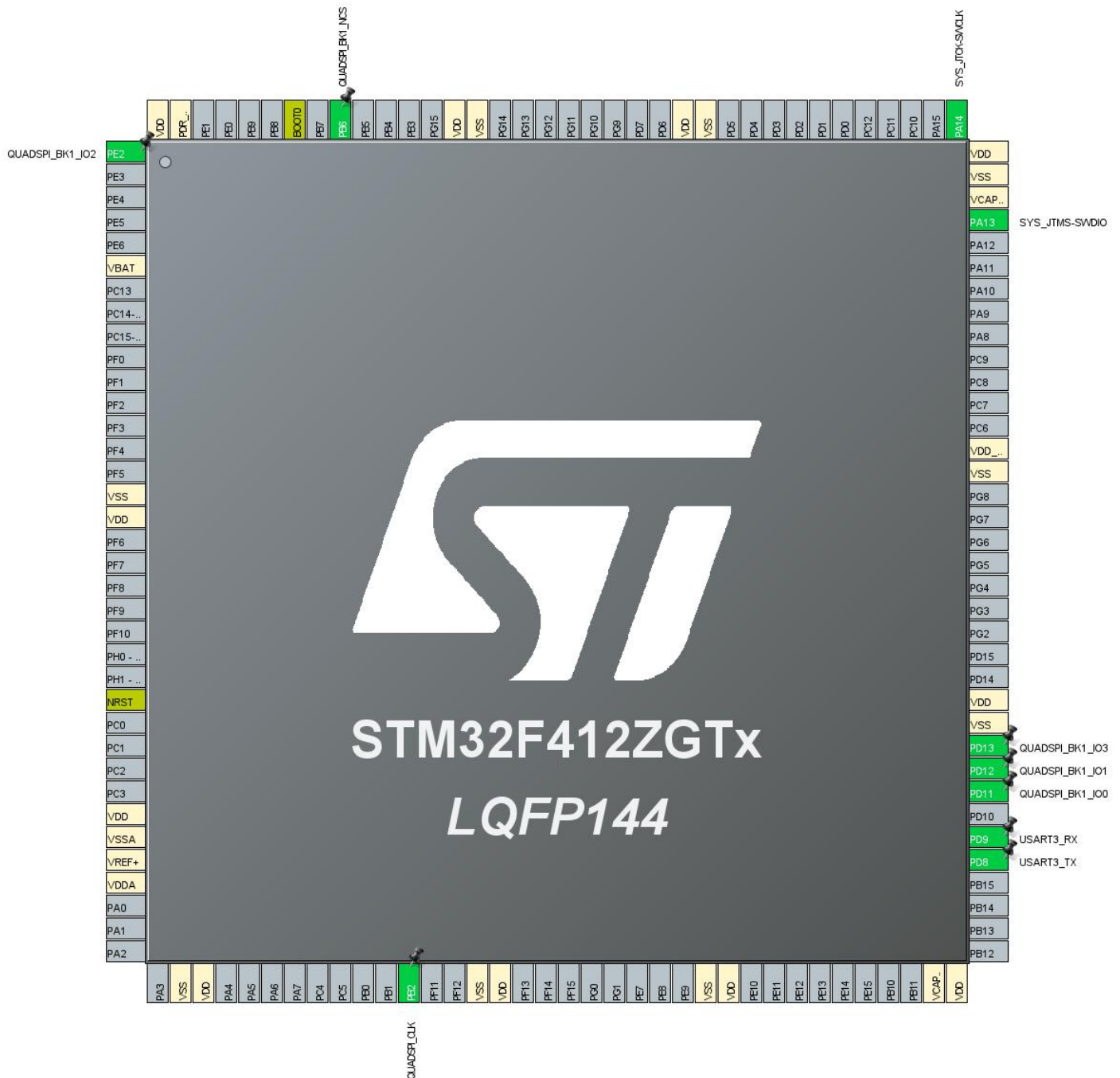
### 1.1. Project

Project Name	QSPITest
Board Name	custom
Generated with:	STM32CubeMX 5.5.0
Date	01/24/2020

### 1.2. MCU

MCU Series	STM32F4
MCU Line	STM32F412
MCU name	STM32F412ZGTx
MCU Package	LQFP144
MCU Pin number	144

## 2. Pinout Configuration

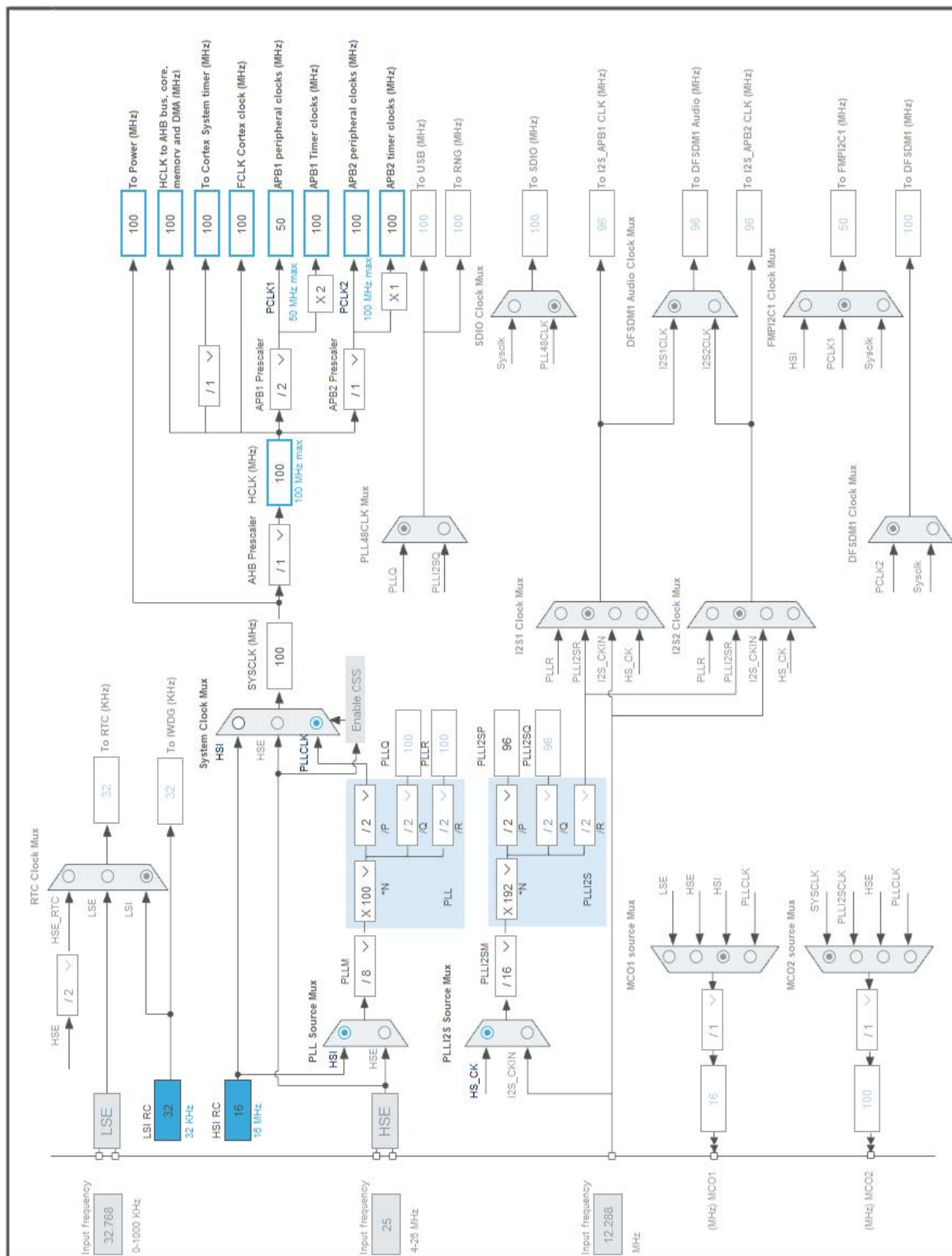


### 3. Pins Configuration

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	PE2	I/O	QUADSPI_BK1_IO2	
6	VBAT	Power		
16	VSS	Power		
17	VDD	Power		
25	NRST	Reset		
30	VDD	Power		
31	VSSA	Power		
32	VREF+	Power		
33	VDDA	Power		
38	VSS	Power		
39	VDD	Power		
48	PB2	I/O	QUADSPI_CLK	
51	VSS	Power		
52	VDD	Power		
61	VSS	Power		
62	VDD	Power		
71	VCAP_1	Power		
72	VDD	Power		
77	PD8	I/O	USART3_TX	
78	PD9	I/O	USART3_RX	
80	PD11	I/O	QUADSPI_BK1_IO0	
81	PD12	I/O	QUADSPI_BK1_IO1	
82	PD13	I/O	QUADSPI_BK1_IO3	
83	VSS	Power		
84	VDD	Power		
94	VSS	Power		
95	VDD_USB	Power		
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		

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
136	PB6	I/O	QUADSPI_BK1_NCS	
138	BOOT0	Boot		
143	PDR_ON	Power		
144	VDD	Power		

## 4. Clock Tree Configuration



## 5. Software Project

### 5.1. Project Settings

Name	Value
Project Name	QSPITest
Project Folder	D:\ST\TouchGFXDemo\QSPITest
Toolchain / IDE	STM32CubeIDE
Firmware Package Name and Version	STM32Cube FW_F4 V1.24.2

### 5.2. Code Generation Settings

Name	Value
STM32Cube MCU packages and embedded software	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

## 6. Power Consumption Calculator report

### 6.1. Microcontroller Selection

Series	STM32F4
Line	STM32F412
MCU	STM32F412ZGTx
Datasheet	028087_Rev5

### 6.2. Parameter Selection

Temperature	25
Vdd	null

## 7. IPs and Middleware Configuration

### 7.1. GPIO

### 7.2. QUADSPI

#### QuadSPI Mode: Bank1 with Quad SPI Lines

##### 7.2.1. Parameter Settings:

###### General Parameters:

Clock Prescaler	0 *
Fifo Threshold	4 *
Sample Shifting	Sample Shifting Half Cycle *
Flash Size	23 *
Chip Select High Time	6 Cycles *
Clock Mode	Low
Flash ID	Flash ID 1
Dual Flash	Disabled

### 7.3. RCC

##### 7.3.1. Parameter Settings:

###### System Parameters:

VDD voltage (V)	3.3
Instruction Cache	Enabled
Prefetch Buffer	Enabled
Data Cache	Enabled
Flash Latency(WS)	3 WS (4 CPU cycle)

###### RCC Parameters:

HSI Calibration Value	16
TIM Prescaler Selection	Disabled
HSE Startup Timeout Value (ms)	100
LSE Startup Timeout Value (ms)	5000

###### Power Parameters:

Power Regulator Voltage Scale	Power Regulator Voltage Scale 1
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## 7.4. SYS

**Debug: Serial Wire**

**Timebase Source: SysTick**

## 7.5. USART3

**Mode: Asynchronous**

### 7.5.1. 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**

## 8. System Configuration

### 8.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
QUADSPI	PE2	QUADSPI_BK1_I02	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
	PB2	QUADSPI_CLK	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
	PD11	QUADSPI_BK1_I00	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
	PD12	QUADSPI_BK1_I01	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
	PD13	QUADSPI_BK1_I03	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
	PB6	QUADSPI_BK1_NCS	Alternate Function Push Pull	Pull-up *	Very High *	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
USART3	PD8	USART3_TX	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
	PD9	USART3_RX	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	

### 8.2. DMA configuration

nothing configured in DMA service

### 8.3. 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
QUADSPI global interrupt	true	1	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
USART3 global interrupt	unused		
FPU global interrupt	unused		

\* User modified value

## ***9. Software Pack Report***