

## 1. Description

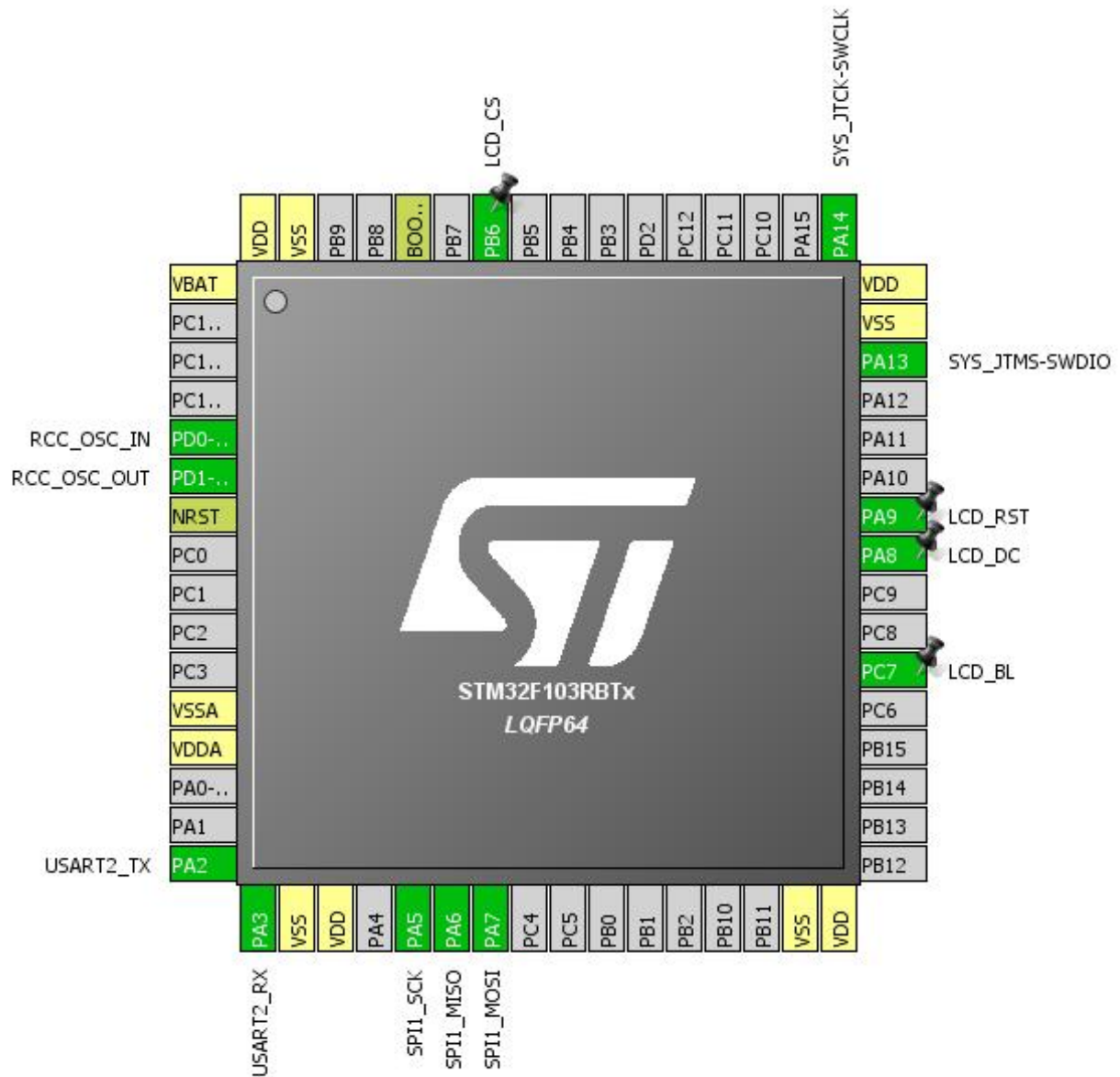
### 1.1. Project

Project Name	lcd1in8-demo
Board Name	lcd1in8-demo
Generated with:	STM32CubeMX 4.22.0
Date	10/30/2017

### 1.2. MCU

MCU Series	STM32F1
MCU Line	STM32F103
MCU name	STM32F103RBTx
MCU Package	LQFP64
MCU Pin number	64

## 2. Pinout Configuration

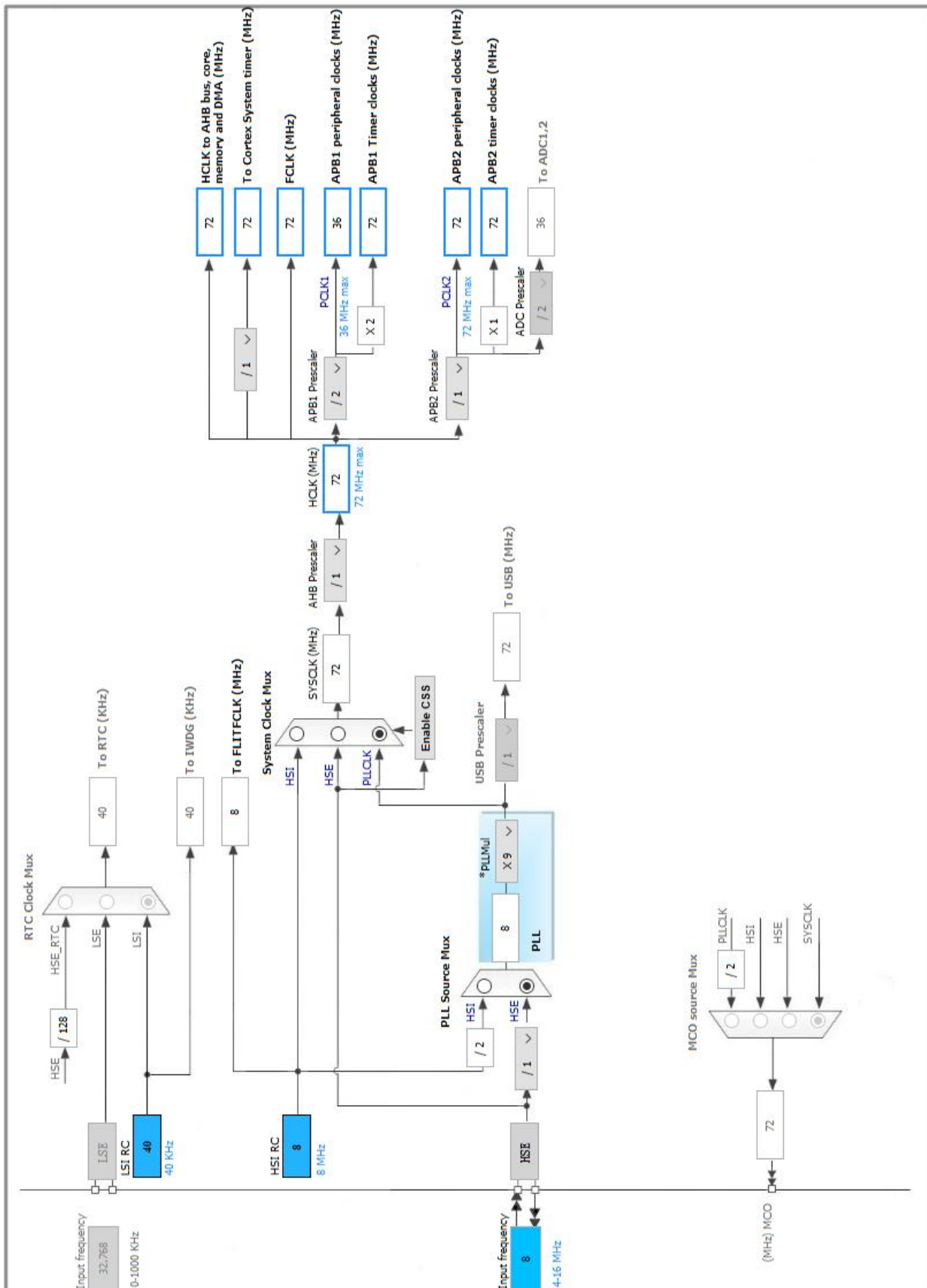


### 3. Pins Configuration

Pin Number LQFP64	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		
12	VSSA	Power		
13	VDDA	Power		
16	PA2	I/O	USART2_TX	
17	PA3	I/O	USART2_RX	
18	VSS	Power		
19	VDD	Power		
21	PA5	I/O	SPI1_SCK	SPI1_SCK
22	PA6	I/O	SPI1_MISO	SPI1_MISO
23	PA7	I/O	SPI1_MOSI	SPI1_MOSI
31	VSS	Power		
32	VDD	Power		
38	PC7 *	I/O	GPIO_Output	LCD_BL
41	PA8 *	I/O	GPIO_Output	LCD_DC
42	PA9 *	I/O	GPIO_Output	LCD_RST
46	PA13	I/O	SYS_JTMS-SWDIO	
47	VSS	Power		
48	VDD	Power		
49	PA14	I/O	SYS_JTCK-SWCLK	
58	PB6 *	I/O	GPIO_Output	LCD_CS
60	BOOT0	Boot		
63	VSS	Power		
64	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
Prefetch Buffer	Enabled
Flash Latency(WS)	2 WS (3 CPU cycle)

###### RCC Parameters:

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

### 5.2. SPI1

#### 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)	8 *
Baud Rate	9.0 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. USART2

Mode: Asynchronous

#### 5.4.1. 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	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	<b>High *</b>	SPI1_SCK
	PA6	SPI1_MISO	Input mode	No pull-up and no pull-down	<b>n/a</b>	SPI1_MISO
	PA7	SPI1_MOSI	Alternate Function Push Pull	n/a	<b>High *</b>	SPI1_MOSI
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
USART2	PA2	USART2_TX	Alternate Function Push Pull	n/a	<b>High *</b>	
	PA3	USART2_RX	Input mode	No pull-up and no pull-down	<b>n/a</b>	
GPIO	PC7	GPIO_Output	Output Push Pull	n/a	Low	LCD_BL
	PA8	GPIO_Output	Output Push Pull	n/a	Low	LCD_DC
	PA9	GPIO_Output	Output Push Pull	n/a	Low	LCD_RST
	PB6	GPIO_Output	Output Push Pull	n/a	Low	LCD_CS

### 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
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
SPI1 global interrupt	unused		
USART2 global interrupt	unused		

\* User modified value



## ***7. Power Consumption Calculator report***

### 7.1. Microcontroller Selection

Series	STM32F1
Line	STM32F103
MCU	STM32F103RBTx
Datasheet	13587_Rev17

### 7.2. Parameter Selection

Temperature	25
Vdd	3.3

## 8. Software Project

### 8.1. Project Settings

Name	Value
Project Name	Lcd1in8-demo
Project Folder	G:\4.project\10.TFT Touch Shield\Program\1.8inch TFT\STM32\XNUCLEO-
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_F1 V1.6.0

### 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)	No