1. Description

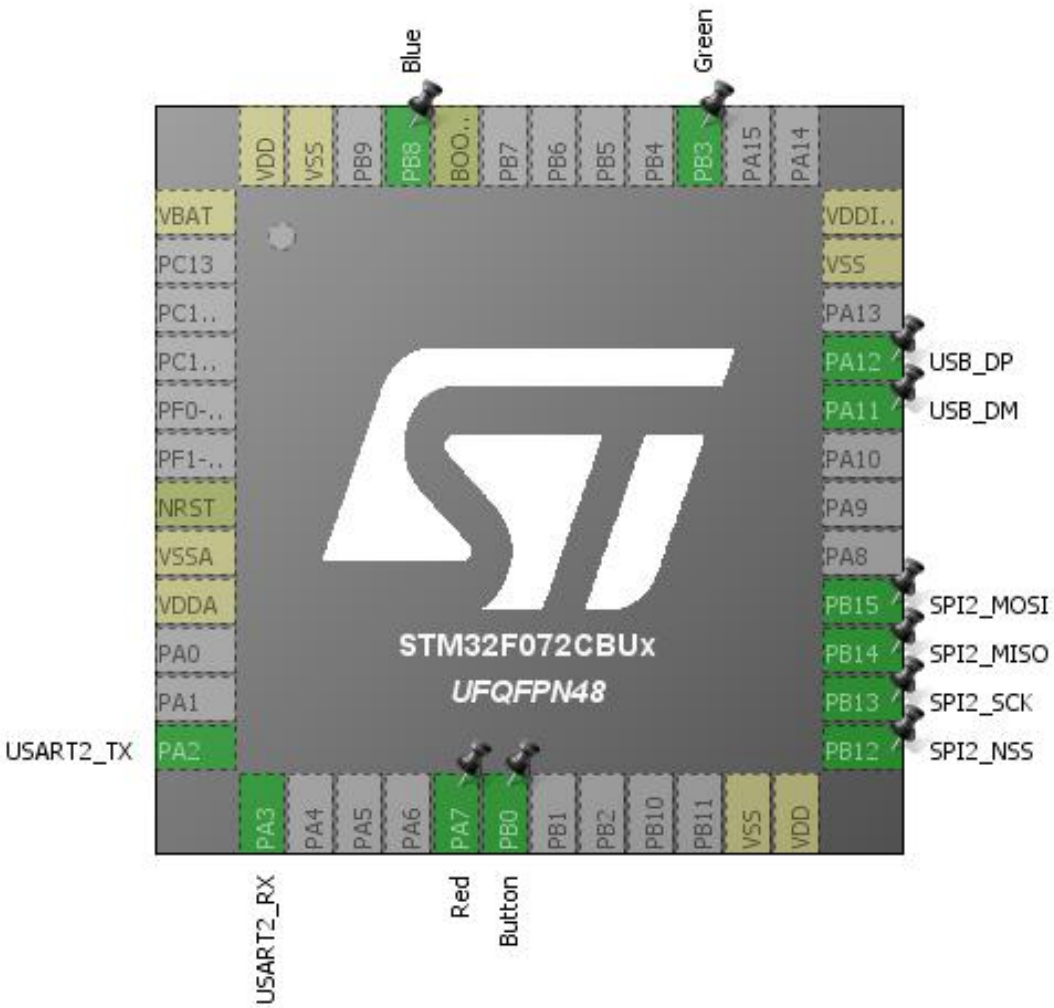
1.1. Project

Project Name	Puzzle_CDC
Board Name	Puzzle_CDC
Generated with:	STM32CubeMX 4.25.1
Date	06/03/2018

1.2. MCU

MCU Series	STM32F0
MCU Line	STM32F0x2
MCU name	STM32F072CBUx
MCU Package	UFQFPN48
MCU Pin number	48

2. Pinout Configuration

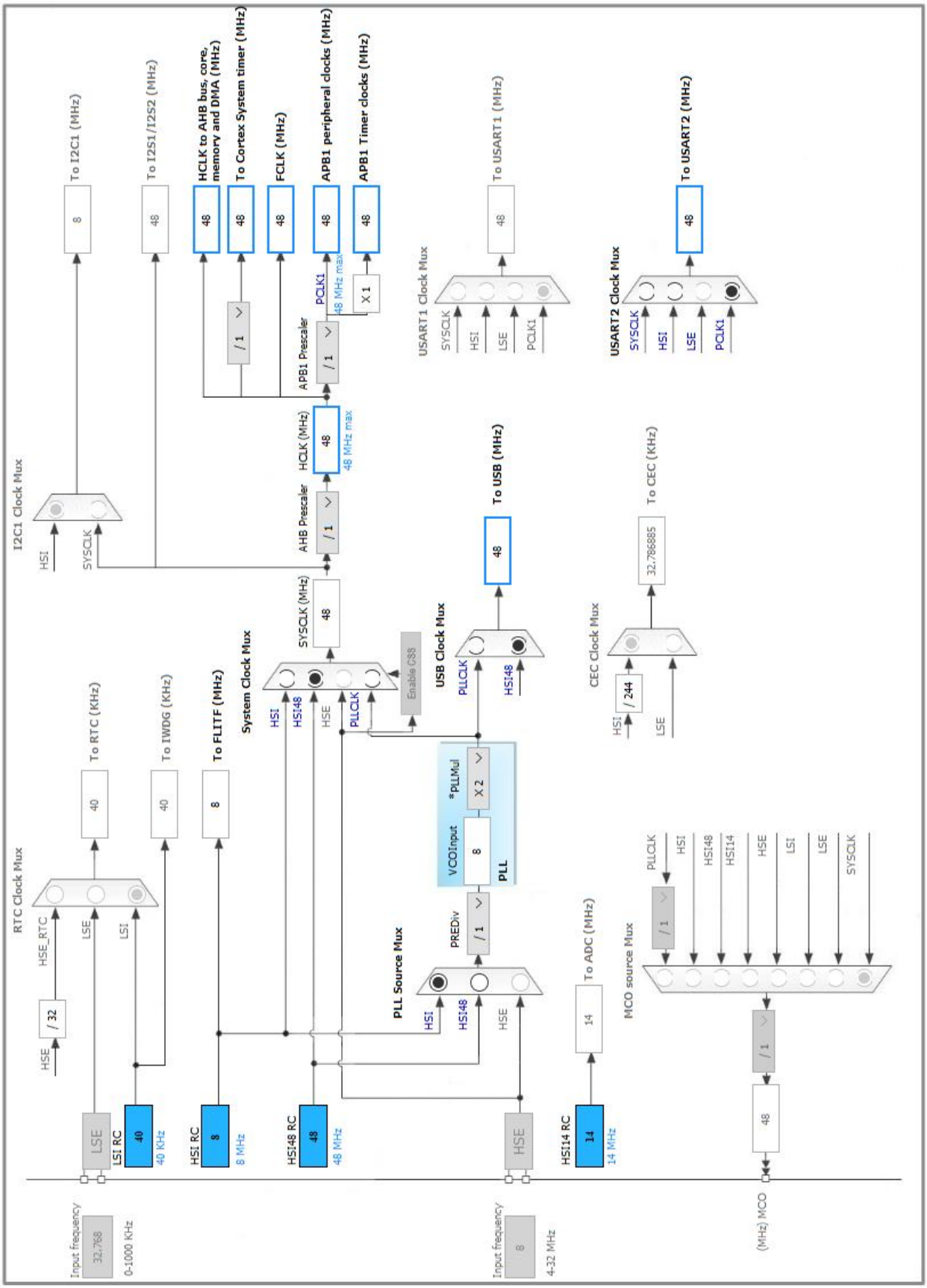


3. Pins Configuration

Pin Number UFQFPN48	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
7	NRST	Reset		
8	VSSA	Power		
9	VDDA	Power		
12	PA2	I/O	USART2_TX	
13	PA3	I/O	USART2_RX	
17	PA7 *	I/O	GPIO_Output	Red
18	PB0 *	I/O	GPIO_Input	Button
23	VSS	Power		
24	VDD	Power		
25	PB12	I/O	SPI2_NSS	
26	PB13	I/O	SPI2_SCK	
27	PB14	I/O	SPI2_MISO	
28	PB15	I/O	SPI2_MOSI	
32	PA11	I/O	USB_DM	
33	PA12	I/O	USB_DP	
35	VSS	Power		
36	VDDIO2	Power		
39	PB3 *	I/O	GPIO_Output	Green
44	BOOT0	Boot		
45	PB8 *	I/O	GPIO_Output	Blue
47	VSS	Power		
48	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. SPI2

Mode: Full-Duplex Master

Hardware NSS Signal: Hardware NSS Output Signal

5.1.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	4 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	**4 ***
Baud Rate	**12.0 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSSP Mode	Enabled
NSS Signal Type	Output Hardware

5.2. SYS

Timebase Source: SysTick

5.3. USART2

Mode: Asynchronous

5.3.1. Parameter Settings:

Basic Parameters:

Baud Rate	38400
Word Length	7 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples
Single Sample	Disable

Advanced Features:

Auto Baudrate	Disable
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

5.4. USB

mode: Device (FS)

5.4.1. Parameter Settings:

Basic Parameters:

Speed	Full Speed 12MBit/s
Endpoint 0 Max Packet size	64 Bytes
Physical interface	Internal Phy

Power Parameters:

Low Power	Disabled
Link Power Management	Disabled

5.5. FATFS

mode: User-defined

5.5.1. Set Defines:

Version:

FATFS version	R0.11

Function Parameters:

FS_READONLY (Read-only mode)	Disabled
FS_MINIMIZE (Minimization level)	Disabled

USE_STRFUNC (String functions)	Enabled with LF -> CRLF conversion
USE_FIND (Find functions)	Disabled
USE_MKFS (Make filesystem function)	Enabled
USE_FASTSEEK (Fast seek function)	Enabled
USE_LABEL (Volume label functions)	Disabled
USE_FORWARD (Forward function)	Disabled

Locale and Namespace Parameters:

CODE_PAGE (Code page on target)	Multilingual Latin 1 (OEM)
USE_LFN (Use Long Filename)	Disabled
MAX_LFN (Max Long Filename)	255
LFN_UNICODE (Enable Unicode)	ANSI/OEM
STRF_ENCODE (Character encoding)	UTF-8
FS_RPATH (Relative Path)	Disabled

Physical Drive Parameters:

VOLUMES (Logical drives)	1
MAX_SS (Maximum Sector Size)	512
MIN_SS (Minimum Sector Size)	512
MULTI_PARTITION (Volume partitions feature)	Disabled
USE_TRIM (Erase feature)	Disabled
FS_NOFSINFO (Force full FAT scan)	0

System Parameters:

FS_TINY (Tiny mode)	Disabled
FS_NORTC (Timestamp feature)	Dynamic timestamp
NORTC_YEAR (Year for timestamp)	2015
NORTC_MON (Month for timestamp)	6
NORTC_MDAY (Day for timestamp)	4
WORD_ACCESS (Platform dependent access option)	Byte access
FS_REENTRANT (Re-Entrancy)	Disabled
FS_TIMEOUT (Timeout ticks)	1000
SYNC_t (O/S sync object)	osSemaphoreId
FS_LOCK (Number of files opened simultaneously)	2

*** User modified value**

6. System Configuration

6.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
SPI2	PB12	SPI2_NSS	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
	PB13	SPI2_SCK	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
	PB14	SPI2_MISO	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
	PB15	SPI2_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
USART2	PA2	USART2_TX	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
	PA3	USART2_RX	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
USB	PA11	USB_DM	n/a	n/a	n/a	
	PA12	USB_DP	n/a	n/a	n/a	
GPIO	PA7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Red
	PB0	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	Button
	PB3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Green
	PB8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Blue

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
System service call via SWI instruction	true	0	0
Pendable request for system service	true	0	0
System tick timer	true	0	0
USB global interrupt / USB wake-up interrupt through EXTI line 18	true	0	0
PVD and VDDIO2 supply comparator interrupts through EXTI lines 16 and 31	unused		
Flash global interrupt	unused		
RCC and CRS global interrupts	unused		
SPI2 global interrupt	unused		
USART2 global interrupt / USART2 wake-up interrupt through EXTI line 26	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F0
Line	STM32F0x2
MCU	STM32F072CBUx
Datasheet	025004_Rev5

7.2. Parameter Selection

Temperature	25
Vdd	3.6

8. Software Project

8.1. Project Settings

Name	Value
Project Name	Puzzle_CDC
Project Folder	D:\MyCode\keil\USB_Puzzle\Puzzle_CDC
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_F0 V1.9.0

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	No
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)	No

9. Software Pack Report