

1. Description

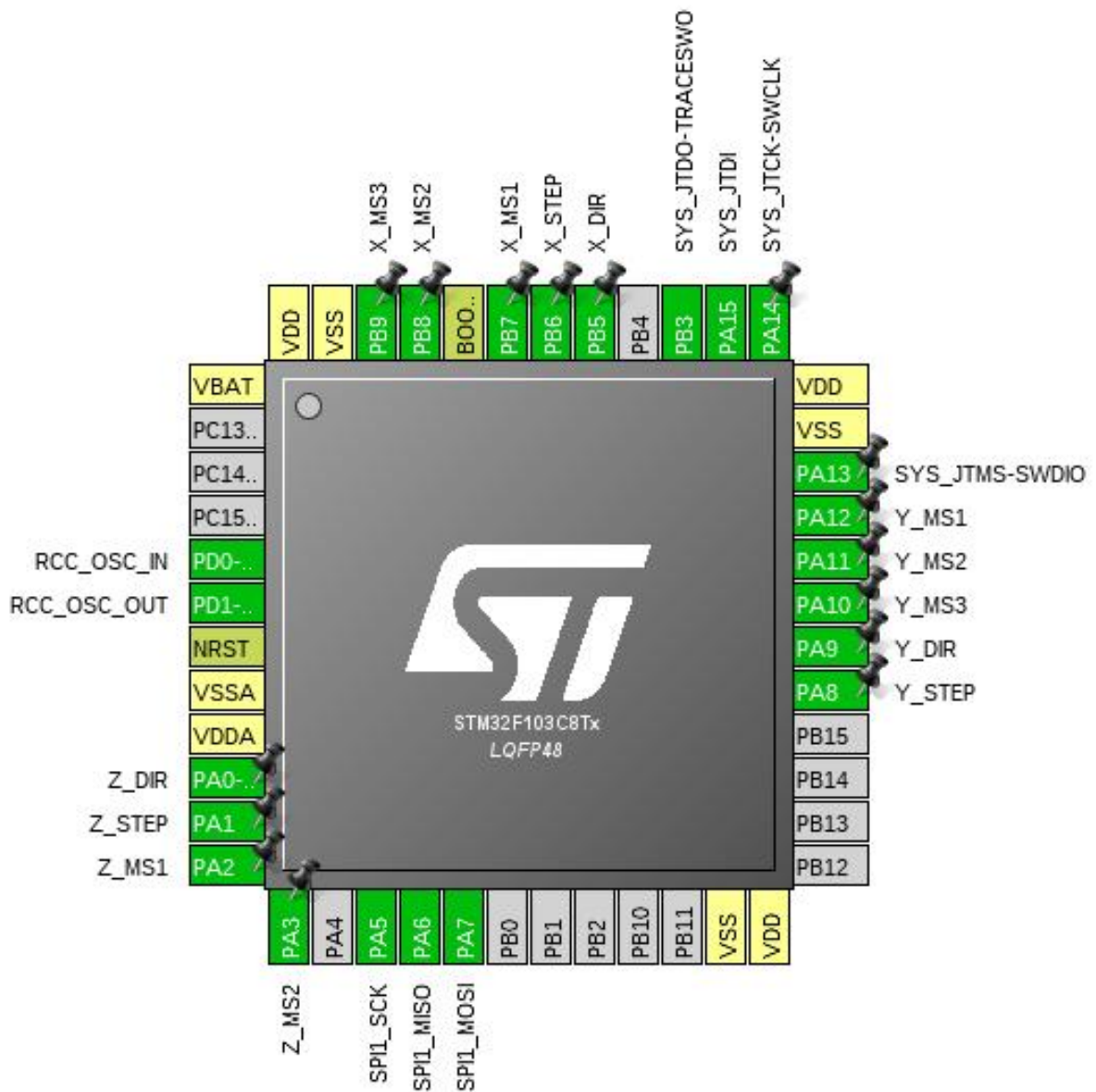
1.1. Project

Project Name	CNC
Board Name	CNC
Generated with:	STM32CubeMX 4.23.0
Date	09/30/2018

1.2. MCU

MCU Series	STM32F1
MCU Line	STM32F103
MCU name	STM32F103C8Tx
MCU Package	LQFP48
MCU Pin number	48

2. Pinout Configuration

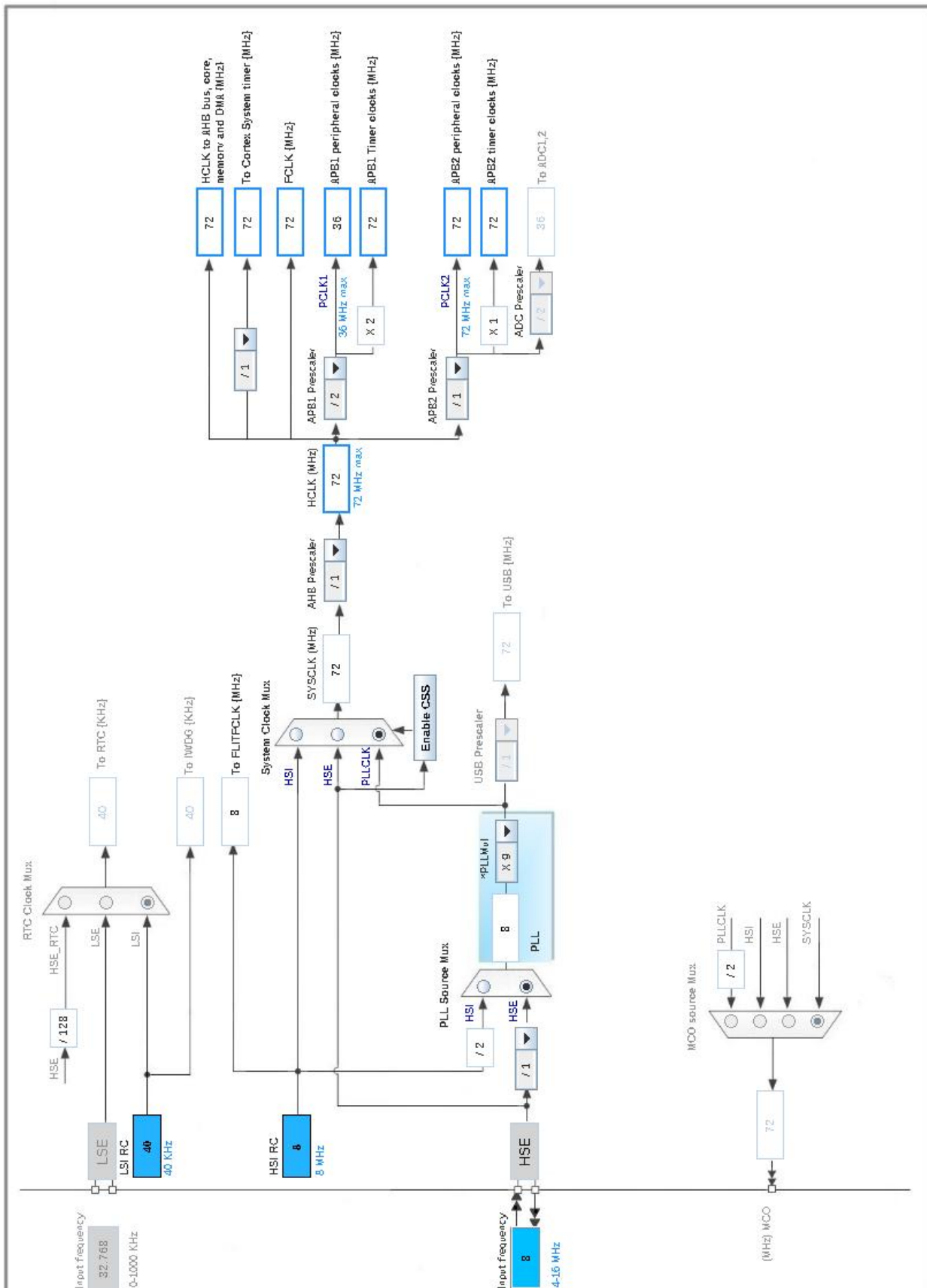


3. Pins Configuration

Pin Number LQFP48	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		
8	VSSA	Power		
9	VDDA	Power		
10	PA0-WKUP *	I/O	GPIO_Output	Z_DIR
11	PA1 *	I/O	GPIO_Output	Z_STEP
12	PA2 *	I/O	GPIO_Output	Z_MS1
13	PA3 *	I/O	GPIO_Output	Z_MS2
15	PA5	I/O	SPI1_SCK	
16	PA6	I/O	SPI1_MISO	
17	PA7	I/O	SPI1_MOSI	
23	VSS	Power		
24	VDD	Power		
29	PA8 *	I/O	GPIO_Output	Y_STEP
30	PA9 *	I/O	GPIO_Output	Y_DIR
31	PA10 *	I/O	GPIO_Output	Y_MS3
32	PA11 *	I/O	GPIO_Output	Y_MS2
33	PA12 *	I/O	GPIO_Output	Y_MS1
34	PA13	I/O	SYS_JTMS-SWDIO	
35	VSS	Power		
36	VDD	Power		
37	PA14	I/O	SYS_JTCK-SWCLK	
38	PA15	I/O	SYS_JTDI	
39	PB3	I/O	SYS_JTDO-TRACESWO	
41	PB5 *	I/O	GPIO_Output	X_DIR
42	PB6 *	I/O	GPIO_Output	X_STEP
43	PB7 *	I/O	GPIO_Output	X_MS1
44	BOOT0	Boot		
45	PB8 *	I/O	GPIO_Output	X_MS2
46	PB9 *	I/O	GPIO_Output	X_MS3
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. 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 Slave

5.2.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	4 *
Baud Rate	18.0 MBits/s *
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

5.3. SYS

Debug: JTAG (4 pins)

Timebase Source: SysTick

* 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	Input mode	No pull-up and no pull-down	n/a	
	PA6	SPI1_MISO	Alternate Function Push Pull	n/a	High *	
	PA7	SPI1_MOSI	Input mode	No pull-up and no pull-down	n/a	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
	PA15	SYS_JTDI	n/a	n/a	n/a	
	PB3	SYS_JTDO-TRACESWO	n/a	n/a	n/a	
GPIO	PA0-WKUP	GPIO_Output	Output Push Pull	n/a	Low	Z_DIR
	PA1	GPIO_Output	Output Push Pull	n/a	Low	Z_STEP
	PA2	GPIO_Output	Output Push Pull	n/a	Low	Z_MS1
	PA3	GPIO_Output	Output Push Pull	n/a	Low	Z_MS2
	PA8	GPIO_Output	Output Push Pull	n/a	Low	Y_STEP
	PA9	GPIO_Output	Output Push Pull	n/a	Low	Y_DIR
	PA10	GPIO_Output	Output Push Pull	n/a	Low	Y_MS3
	PA11	GPIO_Output	Output Push Pull	n/a	Low	Y_MS2
	PA12	GPIO_Output	Output Push Pull	n/a	Low	Y_MS1
	PB5	GPIO_Output	Output Push Pull	n/a	Low	X_DIR
	PB6	GPIO_Output	Output Push Pull	n/a	Low	X_STEP
	PB7	GPIO_Output	Output Push Pull	n/a	Low	X_MS1
	PB8	GPIO_Output	Output Push Pull	n/a	Low	X_MS2
	PB9	GPIO_Output	Output Push Pull	n/a	Low	X_MS3

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		

* User modified value

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F1
Line	STM32F103
MCU	STM32F103C8Tx
Datasheet	13587_Rev17

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	CNC
Project Folder	/home/paolo/workspace/usb-test/CNC
Toolchain / IDE	SW4STM32
Firmware Package Name and Version	STM32Cube FW_F1 V1.6.1

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 consumption)	No