

1. Description

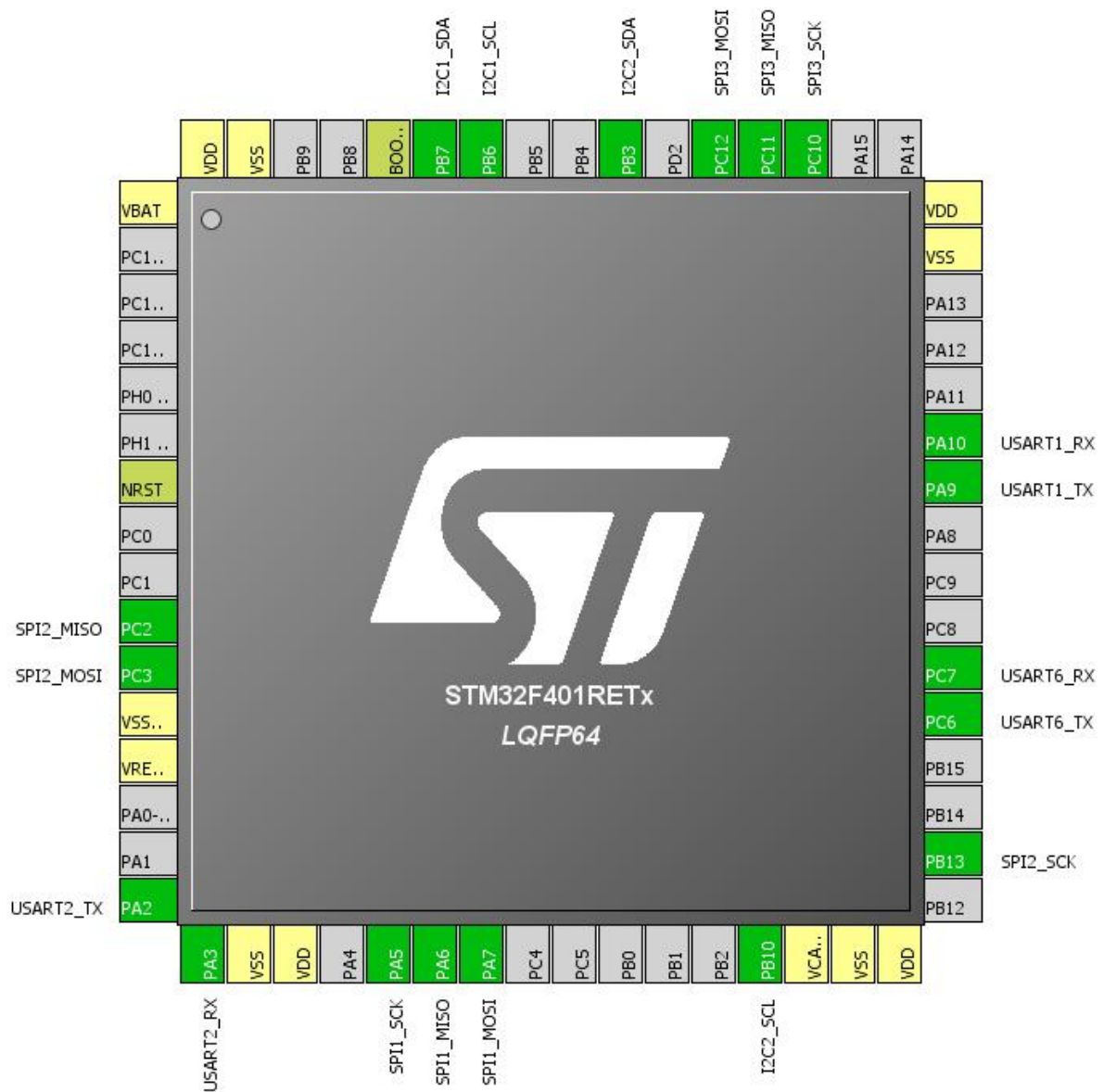
1.1. Project

Project Name	B_pincheck
Board Name	B_pincheck
Generated with:	STM32CubeMX 4.22.1
Date	06/16/2018

1.2. MCU

MCU Series	STM32F4
MCU Line	STM32F401
MCU name	STM32F401RETx
MCU Package	LQFP64
MCU Pin number	64

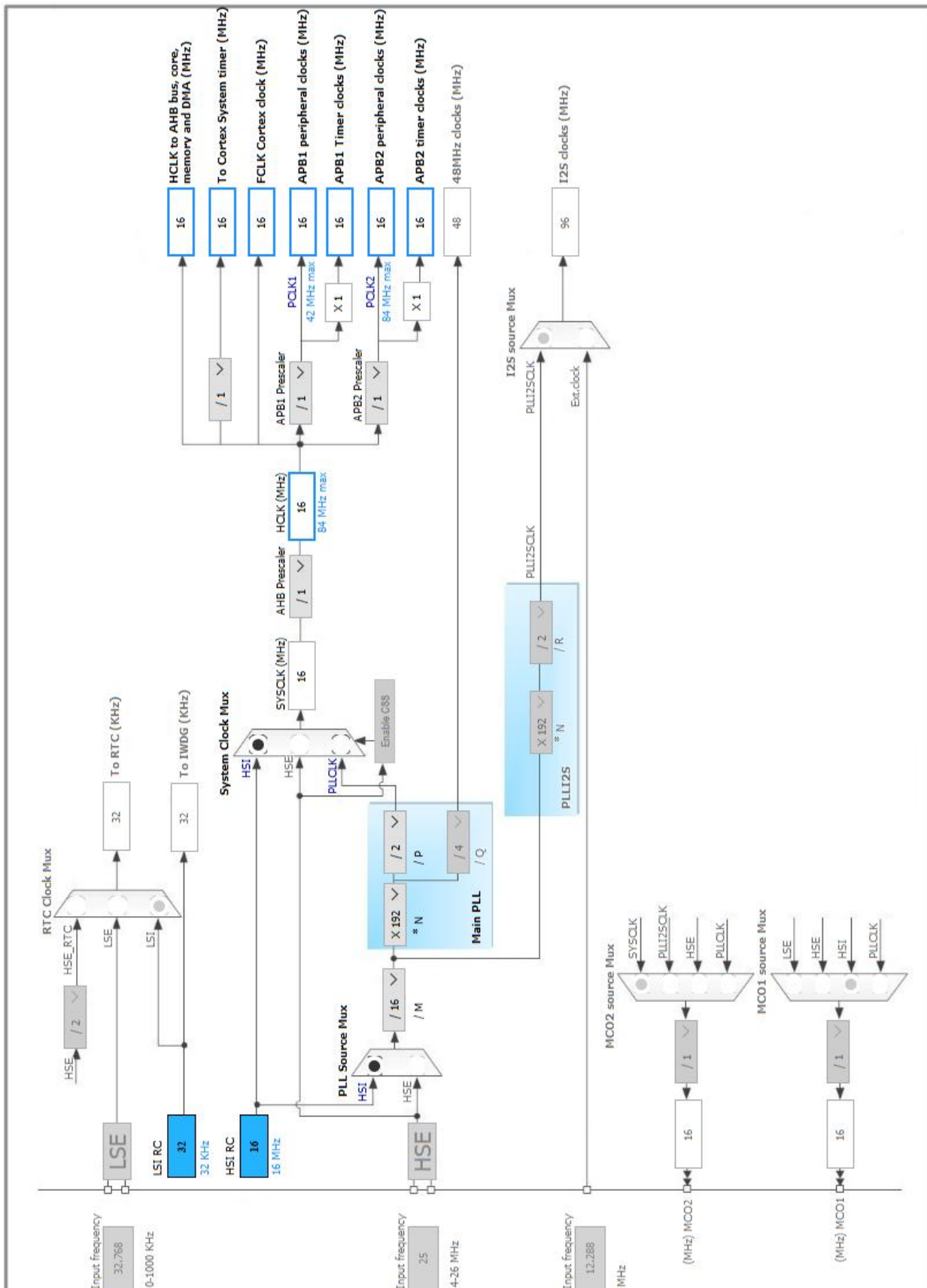
2. Pinout Configuration



3. Pins Configuration

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
7	NRST	Reset		
10	PC2	I/O	SPI2_MISO	
11	PC3	I/O	SPI2_MOSI	
12	VSSA/VREF-	Power		
13	VREF+	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	
22	PA6	I/O	SPI1_MISO	
23	PA7	I/O	SPI1_MOSI	
29	PB10	I/O	I2C2_SCL	
30	VCAP1	Power		
31	VSS	Power		
32	VDD	Power		
34	PB13	I/O	SPI2_SCK	
37	PC6	I/O	USART6_TX	
38	PC7	I/O	USART6_RX	
42	PA9	I/O	USART1_TX	
43	PA10	I/O	USART1_RX	
47	VSS	Power		
48	VDD	Power		
51	PC10	I/O	SPI3_SCK	
52	PC11	I/O	SPI3_MISO	
53	PC12	I/O	SPI3_MOSI	
55	PB3	I/O	I2C2_SDA	
58	PB6	I/O	I2C1_SCL	
59	PB7	I/O	I2C1_SDA	
60	BOOT0	Boot		
63	VSS	Power		
64	VDD	Power		

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. I2C1

I2C: I2C

5.1.1. Parameter Settings:

Master Features:

I2C Speed Mode	Standard Mode
I2C Clock Speed (Hz)	100000

Slave Features:

Clock No Stretch Mode	Disabled
Primary Address Length selection	7-bit
Dual Address Acknowledged	Disabled
Primary slave address	0
General Call address detection	Disabled

5.2. I2C2

I2C: I2C

5.2.1. Parameter Settings:

Master Features:

I2C Speed Mode	Standard Mode
I2C Clock Speed (Hz)	100000

Slave Features:

Clock No Stretch Mode	Disabled
Primary Address Length selection	7-bit
Dual Address Acknowledged	Disabled
Primary slave address	0
General Call address detection	Disabled

5.3. SPI1

Mode: Full-Duplex Slave

5.3.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

5.4. SPI2

Mode: Full-Duplex Slave

5.4.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

5.5. SPI3

Mode: Full-Duplex Slave

5.5.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

5.6. SYS

Timebase Source: SysTick

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

5.8. USART2

Mode: Asynchronous

5.8.1. 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

5.9. USART6

Mode: Asynchronous

5.9.1. 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
I2C1	PB6	I2C1_SCL	Alternate Function Open Drain	Pull-up	Very High *	
	PB7	I2C1_SDA	Alternate Function Open Drain	Pull-up	Very High *	
I2C2	PB10	I2C2_SCL	Alternate Function Open Drain	Pull-up	Very High *	
	PB3	I2C2_SDA	Alternate Function Open Drain	Pull-up	Very High *	
SPI1	PA5	SPI1_SCK	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
	PA6	SPI1_MISO	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
	PA7	SPI1_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
SPI2	PC2	SPI2_MISO	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
	PC3	SPI2_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
	PB13	SPI2_SCK	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
SPI3	PC10	SPI3_SCK	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
	PC11	SPI3_MISO	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
	PC12	SPI3_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
USART1	PA9	USART1_TX	Alternate Function Push Pull	Pull-up	Very High *	
	PA10	USART1_RX	Alternate Function Push Pull	Pull-up	Very High *	
USART2	PA2	USART2_TX	Alternate Function Push Pull	Pull-up	Very High	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
					*	
	PA3	USART2_RX	Alternate Function Push Pull	Pull-up	Very High *	
USART6	PC6	USART6_TX	Alternate Function Push Pull	Pull-up	Very High *	
	PC7	USART6_RX	Alternate Function Push Pull	Pull-up	Very High *	

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
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
I2C1 event interrupt	unused		
I2C1 error interrupt	unused		
I2C2 event interrupt	unused		
I2C2 error interrupt	unused		
SPI1 global interrupt	unused		
SPI2 global interrupt	unused		
USART1 global interrupt	unused		
USART2 global interrupt	unused		
SPI3 global interrupt	unused		
USART6 global interrupt	unused		
FPU global interrupt	unused		

* User modified value

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F4
Line	STM32F401
MCU	STM32F401RETx
Datasheet	025644_Rev3

7.2. Parameter Selection

Temperature	25
Vdd	null

8. Software Project

8.1. Project Settings

Name	Value
Project Name	B_pincheck
Project Folder	C:\Users\Carter\Desktop\Orbit\github\concept\PCBCheck\B_pincheck
Toolchain / IDE	SW4STM32
Firmware Package Name and Version	STM32Cube FW_F4 V1.16.0

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