

1. Description

1.1. Project

Project Name	PrjBfscFo@207VC
Board Name	PrjBfscFo@207VC
Generated with:	STM32CubeMX 4.17.0
Date	03/19/2017

1.2. MCU

MCU Series	STM32F2
MCU Line	STM32F2x7
MCU name	STM32F207VCTx
MCU Package	LQFP100
MCU Pin number	100



3. Pins Configuration

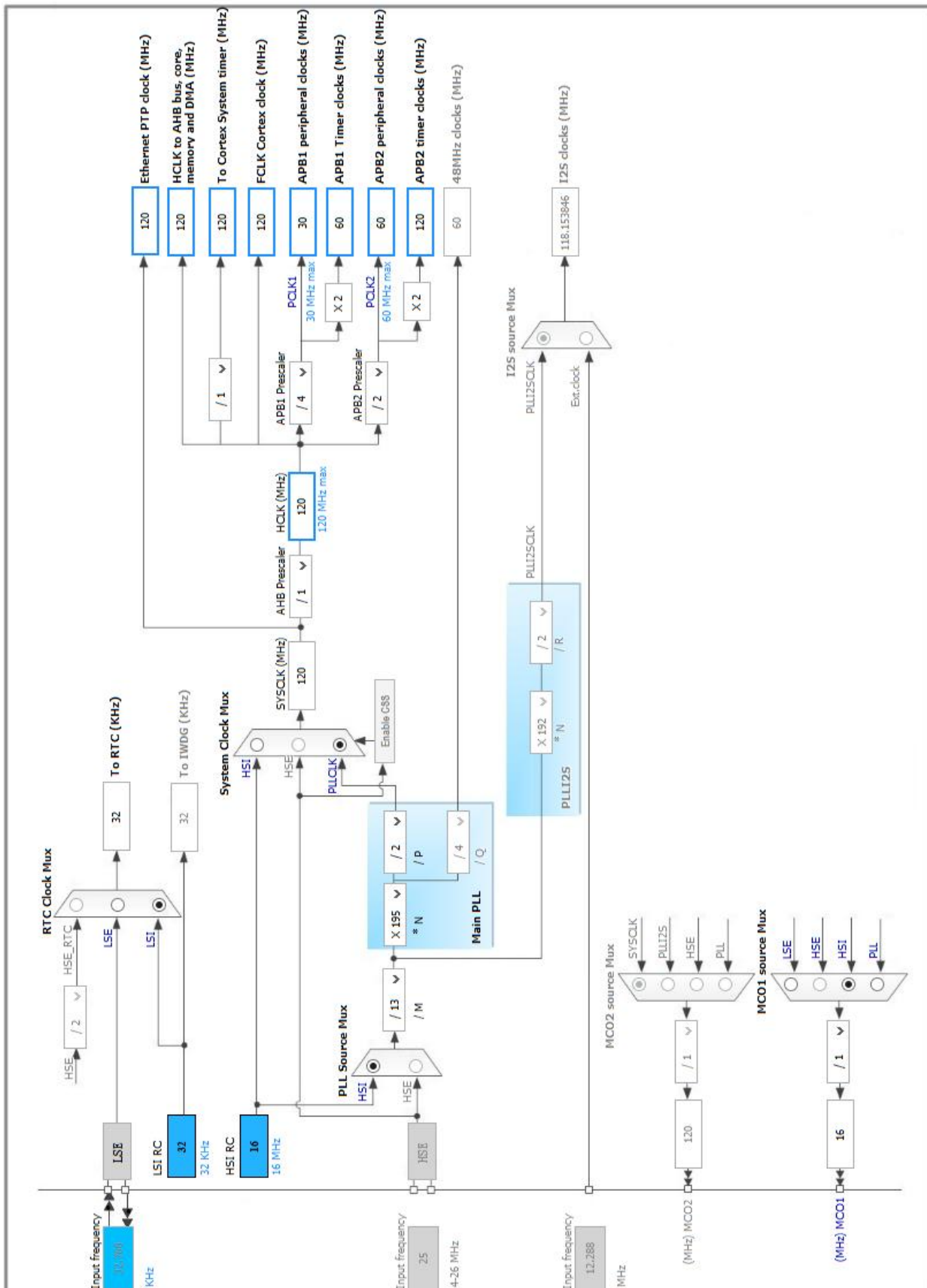
Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
6	VBAT	Power		
8	PC14-OSC32_IN	I/O	RCC_OSC32_IN	CUBEMX_PIN_F2_RCC_O SC32_IN
9	PC15-OSC32_OUT	I/O	RCC_OSC32_OUT	CUBEMX_PIN_F2_RCC_O SC32_OUT
10	VSS	Power		
11	VDD	Power		
14	NRST	Reset		
19	VDD	Power		
20	VSSA	Power		
21	VREF+	Power		
22	VDDA	Power		
23	PA0-WKUP	I/O	SYS_WKUP	CUBEMX_PIN_F2_STS_W KUP
24	PA1	I/O	ADC1_IN1	CUBEMX_PIN_F2_ADC1_T EST1
25	PA2	I/O	USART2_TX	CUBEMX_PIN_F2_USART2 _TX_485
26	PA3	I/O	USART2_RX	CUBEMX_PIN_F2_USART2 _RX_485
27	VSS	Power		
28	VDD	Power		
29	PA4	I/O	DAC_OUT1	CUBEMX_PIN_F2_MOTO_ CTRL
30	PA5 *	I/O	GPIO_Input	
31	PA6 *	I/O	GPIO_Input	
32	PA7 *	I/O	GPIO_Input	
37	PB2 *	I/O	GPIO_Input	CUBEMX_PIN_F2_BOOT1
47	PB10	I/O	I2C2_SCL	CUBEMX_PIN_F2_I2C2_S CL
48	PB11	I/O	I2C2_SDA	CUBEMX_PIN_F2_I2C2_S DA
49	VCAP_1	Power		
50	VDD	Power		
51	PB12	I/O	SPI2_NSS	CUBEMX_PIN_F2_SPI2_C S_ADC
52	PB13	I/O	SPI2_SCK	CUBEMX_PIN_F2_SPI2_S CK_ADC

Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
53	PB14	I/O	SPI2_MISO	CUBEMX_PIN_F2_SPI2_MI SO_ADC
54	PB15	I/O	SPI2_MOSI	CUBEMX_PIN_F2_SPI2_M OSI_ADC
55	PD8	I/O	USART3_TX	CUBEMX_PIN_F2_USART3 _TX_PRINT
56	PD9	I/O	USART3_RX	CUBEMX_PIN_F2_USART3 _RX_PRINT
59	PD12 *	I/O	GPIO_Input	CUBEMX_PIN_F2_USART2 _485_CTRL
60	PD13 *	I/O	GPIO_Output	CUBEMX_PIN_F2_GPIO_D O_BEEP
61	PD14 *	I/O	GPIO_Output	CUBEMX_PIN_F2_GPIO_D O_LED_SERV3
62	PD15 *	I/O	GPIO_Output	CUBEMX_PIN_F2_GPIO_D O_LED_SERV2
63	PC6 *	I/O	GPIO_Output	CUBEMX_PIN_F2_GPIO_D O_LED_SERV1
64	PC7 *	I/O	GPIO_Output	CUBEMX_PIN_F2_GPIO_D O_LED_WORK_STATE
65	PC8 *	I/O	GPIO_Output	CUBEMX_PIN_F2_GPIO_D O_LED_COMMU
66	PC9 *	I/O	GPIO_Output	CUBEMX_PIN_F2_GPIO_D O_LED_POWER
67	PA8	I/O	RCC_MCO_1	CUBEMX_PIN_F2_ADC_CL K
68	PA9	I/O	USART1_TX	CUBEMX_PIN_F2_USART1 _TX_DEBUG
69	PA10	I/O	USART1_RX	CUBEMX_PIN_F2_USART1 _RX_DEBUG
72	PA13	I/O	SYS_JTMS-SWDIO	CUBEMX_PIN_F2_SYS_JT MS_SWDIO
73	VCAP_2	Power		
74	VSS	Power		
75	VDD	Power		
76	PA14	I/O	SYS_JTCK-SWCLK	CUBEMX_PIN_F2_SYS_JT CK_SWCLK
77	PA15	I/O	SYS_JTDI	CUBEMX_PIN_F2_SYS_JT DI
78	PC10	I/O	SPI3_SCK	CUBEMX_PIN_F2_SPI3_S CK_ADC
79	PC11	I/O	SPI3_MISO	CUBEMX_PIN_F2_SPI3_MI SO_ADC

Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
80	PC12	I/O	SPI3_MOSI	CUBEMX_PIN_F2_SPI3_M OSI_ADC
89	PB3	I/O	SYS_JTDO-SWO	CUBEMX_PIN_F2_SYS_JT DO_SWO
90	PB4	I/O	SYS_JTRST	CUBEMX_PIN_F2_SYS_JT RST
92	PB6	I/O	I2C1_SCL	CUBEMX_PIN_F2_I2C1_S CL
93	PB7	I/O	I2C1_SDA	CUBEMX_PIN_F2_I2C1_S DA
94	BOOT0	Boot		
95	PB8	I/O	CAN1_RX	CUBEMX_PIN_F2_CAN1_R X
96	PB9	I/O	CAN1_TX	CUBEMX_PIN_F2_CAN1_T X
99	RFU	Power		
100	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5.2. CAN1

mode: Mode

5.2.1. Parameter Settings:

Bit Timings Parameters:

Prescaler (for Time Quantum)	4 *
Time Quantum	133.33333333333334 *
Time Quanta in Bit Segment 1	12 Times *
Time Quanta in Bit Segment 2	2 Times *
Time for one Bit	2000 *
ReSynchronization Jump Width	1 Time

Basic Parameters:

Time Triggered Communication Mode	Disable
Automatic Bus-Off Management	Disable
Automatic Wake-Up Mode	Disable
No-Automatic Retransmission	Disable
Receive Fifo Locked Mode	Disable
Transmit Fifo Priority	Disable

Advanced Parameters:

Operating Mode	Normal
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5.3. CRC

mode: Activated

5.4. DAC

mode: OUT1 Configuration

5.4.1. Parameter Settings:

DAC Out1 Settings:

Output Buffer	Enable
Trigger	None

5.5. I2C1

I2C: I2C

5.5.1. 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

5.6. I2C2

I2C: I2C

5.6.1. 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

5.7. RCC

Low Speed Clock (LSE) : Crystal/Ceramic Resonator mode: Master Clock Output 1

5.7.1. 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
HSE Startup Timeout Value (ms)	100
LSE Startup Timeout Value (ms)	5000

5.8. RTC

mode: Activate Clock Source

mode: Activate Calendar

Alarm A: Internal Alarm

Alarm B: Internal Alarm

WakeUp: Internal WakeUp

5.8.1. Parameter Settings:

General:

Hour Format	Hourformat 24
Asynchronous Predivider value	127
Synchronous Predivider value	255

Calendar Time:

Data Format	BCD data format
Hours	0
Minutes	0
Seconds	0
Day Light Saving: value of hour adjustment	Daylightsaving None
Store Operation	Storeoperation Reset

Calendar Date:

Week Day	Monday
Month	January
Date	3 *
Year	17 *

Alarm A:

Hours	0
Minutes	0
Seconds	0
Alarm Mask Date Week day	Disable
Alarm Mask Hours	Disable
Alarm Mask Minutes	Disable
Alarm Mask Seconds	Disable
Alarm Date Week Day Sel	Date
Alarm Date	1

Alarm B:

Hours	0
Minutes	0
Seconds	0
Alarm Mask Date Week day	Disable
Alarm Mask Hours	Disable
Alarm Mask Minutes	Disable
Alarm Mask Seconds	Disable
Alarm Date Week Day Sel	Date
Alarm Date	1

Wake UP:

Wake Up Clock	RTCCLK / 16
Wake Up Counter	0

5.9. SPI2

Mode: Full-Duplex Master

Hardware NSS Signal: Hardware NSS Output Signal

5.9.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	4 *
Baud Rate	7.5 MBits/s *
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Output Hardware

5.10. SPI3

Mode: Full-Duplex Master

5.10.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	15.0 MBits/s *
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

5.11. SYS

Debug: JTAG (5 pins)

mode: System Wake-Up

Timebase Source: TIM1

5.12. TIM6

mode: Activated

5.12.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	0

Trigger Output (TRGO) Parameters:

Trigger Event Selection	Reset (UG bit from TIMx_EGR)
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5.13. TIM7

mode: Activated

5.13.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	0

Trigger Output (TRGO) Parameters:

Trigger Event Selection	Reset (UG bit from TIMx_EGR)
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5.14. USART1

Mode: Asynchronous

5.14.1. 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

5.15. USART2

Mode: Asynchronous

5.15.1. 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

5.16. USART3

Mode: Asynchronous

5.16.1. 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

5.17. FREERTOS

mode: Enabled

5.17.1. Config parameters:

Versions:

CMSIS-RTOS version	1.02
FreeRTOS version	8.2.3

Kernel settings:

USE_PREEMPTION	Enabled
CPU_CLOCK_HZ	SystemCoreClock
TICK_RATE_HZ	1000

MAX_PRIORITIES	31 *
MINIMAL_STACK_SIZE	128
MAX_TASK_NAME_LEN	24 *
USE_16_BIT_TICKS	Disabled
IDLE_SHOULD_YIELD	Enabled
USE_MUTEXES	Enabled
USE_RECURSIVE_MUTEXES	Enabled *
USE_COUNTING_SEMAPHORES	Enabled *
QUEUE_REGISTRY_SIZE	2 *
USE_APPLICATION_TASK_TAG	Disabled
TOTAL_HEAP_SIZE	0x8C00 *
Memory Management scheme	heap_4
USE_ALTERNATIVE_API	Disabled
ENABLE_BACKWARD_COMPATIBILITY	Enabled
USE_PORT_OPTIMISED_TASK_SELECTION	Enabled *
USE_TICKLESS_IDLE	Enabled *
USE_TASK_NOTIFICATIONS	Enabled

Hook function related definitions:

USE_IDLE_HOOK	Enabled *
USE_TICK_HOOK	Enabled *
USE_MALLOC_FAILED_HOOK	Enabled *
CHECK_FOR_STACK_OVERFLOW	Option2 *

Run time and task stats gathering related definitions:

USE_TRACE_FACILITY	Enabled
GENERATE_RUN_TIME_STATS	Enabled *

Co-routine related definitions:

USE_CO_ROUTINES	Disabled
MAX_CO_ROUTINE_PRIORITIES	2

Software timer definitions:

USE_TIMERS	Enabled *
TIMER_TASK_PRIORITY	2
TIMER_QUEUE_LENGTH	10
TIMER_TASK_STACK_DEPTH	256

Interrupt nesting behaviour configuration:

LIBRARY_LOWEST_INTERRUPT_PRIORITY	15
LIBRARY_MAX_SYSCALL_INTERRUPT_PRIORITY	5

5.17.2. Include parameters:

Include definitions:

vTaskPrioritySet	Enabled
uxTaskPriorityGet	Enabled
vTaskDelete	Enabled
vTaskCleanUpResources	Enabled *
vTaskSuspend	Enabled
vTaskDelayUntil	Disabled
vTaskDelay	Enabled
xTaskGetSchedulerState	Enabled
xTaskResumeFromISR	Enabled
xQueueGetMutexHolder	Disabled
xSemaphoreGetMutexHolder	Disabled
pcTaskGetTaskName	Enabled *
uxTaskGetStackHighWaterMark	Disabled
xTaskGetCurrentTaskHandle	Disabled
eTaskGetState	Enabled *
xEventGroupSetBitFromISR	Disabled
xTimerPendFunctionCall	Disabled

*** User modified value**

6. System Configuration

6.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
ADC1	PA1	ADC1_IN1	Analog mode	No pull-up and no pull-down	n/a	CUBEMX_PIN_F2_ADC1_TEST1
CAN1	PB8	CAN1_RX	Alternate Function Push Pull	No pull-up and no pull-down	High *	CUBEMX_PIN_F2_CAN1_RX
	PB9	CAN1_TX	Alternate Function Push Pull	No pull-up and no pull-down	High *	CUBEMX_PIN_F2_CAN1_TX
DAC	PA4	DAC_OUT1	Analog mode	No pull-up and no pull-down	n/a	CUBEMX_PIN_F2_MOTO_CTRL
I2C1	PB6	I2C1_SCL	Alternate Function Open Drain	Pull-up	High *	CUBEMX_PIN_F2_I2C1_SCL
	PB7	I2C1_SDA	Alternate Function Open Drain	Pull-up	High *	CUBEMX_PIN_F2_I2C1_SDA
I2C2	PB10	I2C2_SCL	Alternate Function Open Drain	Pull-up	High *	CUBEMX_PIN_F2_I2C2_SCL
	PB11	I2C2_SDA	Alternate Function Open Drain	Pull-up	High *	CUBEMX_PIN_F2_I2C2_SDA
RCC	PC14-OSC32_IN	RCC_OSC32_IN	n/a	n/a	n/a	CUBEMX_PIN_F2_RCC_OSC32_IN
	PC15-OSC32_OUT	RCC_OSC32_OUT	n/a	n/a	n/a	CUBEMX_PIN_F2_RCC_OSC32_OUT
	PA8	RCC_MCO_1	Alternate Function Push Pull	No pull-up and no pull-down	Low	CUBEMX_PIN_F2_ADC_CLK
SPI2	PB12	SPI2_NSS	Alternate Function Push Pull	No pull-up and no pull-down	High *	CUBEMX_PIN_F2_SPI2_CS_ADC
	PB13	SPI2_SCK	Alternate Function Push Pull	No pull-up and no pull-down	High *	CUBEMX_PIN_F2_SPI2_SCK_ADC
	PB14	SPI2_MISO	Alternate Function Push Pull	No pull-up and no pull-down	High *	CUBEMX_PIN_F2_SPI2_MISO_ADC
	PB15	SPI2_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	High *	CUBEMX_PIN_F2_SPI2_MOSI_ADC
SPI3	PC10	SPI3_SCK	Alternate Function Push Pull	No pull-up and no pull-down	High *	CUBEMX_PIN_F2_SPI3_SCK_ADC
	PC11	SPI3_MISO	Alternate Function Push Pull	No pull-up and no pull-down	High *	CUBEMX_PIN_F2_SPI3_MISO_ADC
	PC12	SPI3_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	High *	CUBEMX_PIN_F2_SPI3_MOSI_ADC
SYS	PA0-WKUP	SYS_WKUP	n/a	n/a	n/a	CUBEMX_PIN_F2_STS_

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
						WKUP
	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	CUBEMX_PIN_F2_SYS_JTMS_SWDIO
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	CUBEMX_PIN_F2_SYS_JTCK_SWCLK
	PA15	SYS_JTDI	n/a	n/a	n/a	CUBEMX_PIN_F2_SYS_JTDI
	PB3	SYS_JTDO-SWO	n/a	n/a	n/a	CUBEMX_PIN_F2_SYS_JTDO_SWO
	PB4	SYS_JTRST	n/a	n/a	n/a	CUBEMX_PIN_F2_SYS_JTRST
USART1	PA9	USART1_TX	Alternate Function Push Pull	Pull-up	High *	CUBEMX_PIN_F2_USART1_TX_DEBUG
	PA10	USART1_RX	Alternate Function Push Pull	Pull-up	High *	CUBEMX_PIN_F2_USART1_RX_DEBUG
USART2	PA2	USART2_TX	Alternate Function Push Pull	Pull-up	High *	CUBEMX_PIN_F2_USART2_TX_485
	PA3	USART2_RX	Alternate Function Push Pull	Pull-up	High *	CUBEMX_PIN_F2_USART2_RX_485
USART3	PD8	USART3_TX	Alternate Function Push Pull	Pull-up	High *	CUBEMX_PIN_F2_USART3_TX_PRINT
	PD9	USART3_RX	Alternate Function Push Pull	Pull-up	High *	CUBEMX_PIN_F2_USART3_RX_PRINT
GPIO	PA5	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PA6	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PA7	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PB2	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	CUBEMX_PIN_F2_BOOT1
	PD12	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	CUBEMX_PIN_F2_USART2_485_CTRL
	PD13	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	CUBEMX_PIN_F2_GPIO_DO_BEEP
	PD14	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	CUBEMX_PIN_F2_GPIO_DO_LED_SERV3
	PD15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	CUBEMX_PIN_F2_GPIO_DO_LED_SERV2
	PC6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	CUBEMX_PIN_F2_GPIO_DO_LED_SERV1
	PC7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	CUBEMX_PIN_F2_GPIO_DO_LED_WORK_STATE
	PC8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	CUBEMX_PIN_F2_GPIO_DO_LED_COMMU
	PC9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	CUBEMX_PIN_F2_GPIO_DO_LED_POWER

6.2. DMA configuration

DMA request	Stream	Direction	Priority
SPI2_RX	DMA1_Stream3	Peripheral To Memory	Medium *
SPI2_TX	DMA1_Stream4	Memory To Peripheral	Medium *

SPI2_RX: DMA1_Stream3 DMA request Settings:

Mode: Normal
Use fifo: Disable
Peripheral Increment: Disable
Memory Increment: **Enable ***
Peripheral Data Width: Byte
Memory Data Width: Byte

SPI2_TX: DMA1_Stream4 DMA request Settings:

Mode: Normal
Use fifo: Disable
Peripheral Increment: Disable
Memory Increment: **Enable ***
Peripheral Data Width: Byte
Memory Data Width: Byte

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	15	0
System tick timer	true	15	0
DMA1 stream3 global interrupt	true	5	0
DMA1 stream4 global interrupt	true	5	0
CAN1 RX0 interrupts	true	5	0
CAN1 RX1 interrupt	true	5	0
TIM1 update interrupt and TIM10 global interrupt	true	0	0
SPI2 global interrupt	true	5	0
USART1 global interrupt	true	5	0
USART2 global interrupt	true	5	0
USART3 global interrupt	true	5	0
PVD interrupt through EXTI line16	unused		
RTC wake-up interrupt through EXTI line 22	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1, ADC2 and ADC3 global interrupts	unused		
CAN1 TX interrupts	unused		
CAN1 SCE interrupt	unused		
I2C1 event interrupt	unused		
I2C1 error interrupt	unused		
I2C2 event interrupt	unused		
I2C2 error interrupt	unused		
RTC alarms A and B interrupt through EXTI line 17	unused		
SPI3 global interrupt	unused		
TIM6 global interrupt, DAC1 and DAC2 underrun error interrupts	unused		
TIM7 global interrupt	unused		

* User modified value

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F2
Line	STM32F2x7
MCU	STM32F207VCTx
Datasheet	15818_Rev13

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	PrjBfscFo@207VC
Project Folder	D:\Myc\Project\Baxian\Git\ihu\PrjBfscFo@207VC
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_F2 V1.4.0

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	No
Delete previously generated files when not re-generated	Yes
Set all free pins as analog (to optimize the power consumption)	No