1. Description

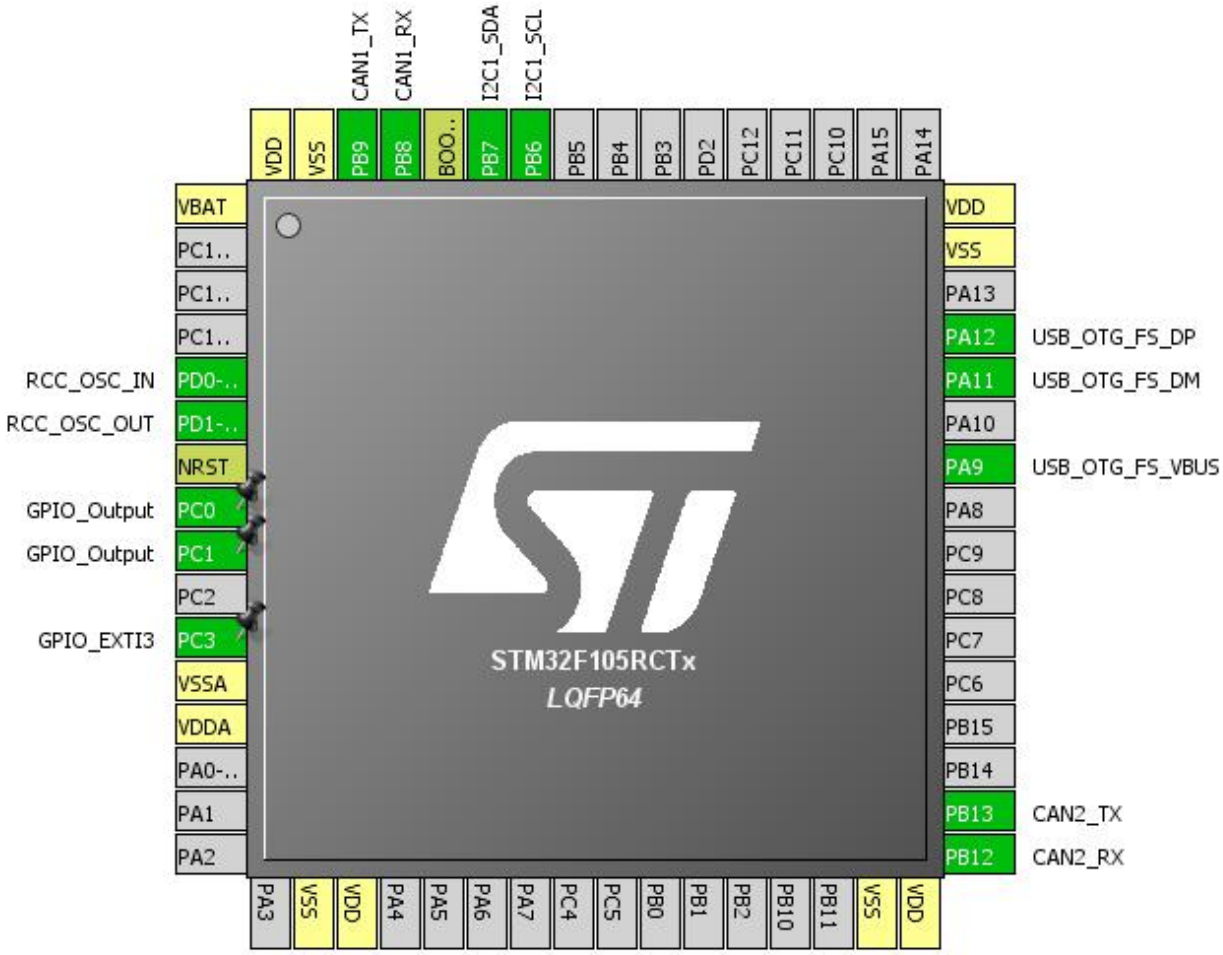
1.1. Project

Project Name	usb_can
Board Name	usb_can
Generated with:	STM32CubeMX 4.9.0
Date	05/21/2017

1.2. MCU

MCU Series	STM32F1
MCU Line	STM32F105/107
MCU name	STM32F105RCTx
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		
8	PC0 *	I/O	GPIO_Output	
9	PC1 *	I/O	GPIO_Output	
11	PC3	I/O	GPIO_EXTI3	
12	VSSA	Power		
13	VDDA	Power		
18	VSS	Power		
19	VDD	Power		
31	VSS	Power		
32	VDD	Power		
33	PB12	I/O	CAN2_RX	
34	PB13	I/O	CAN2_TX	
42	PA9	I/O	USB_OTG_FS_VBUS	
44	PA11	I/O	USB_OTG_FS_DM	
45	PA12	I/O	USB_OTG_FS_DP	
47	VSS	Power		
48	VDD	Power		
58	PB6	I/O	I2C1_SCL	
59	PB7	I/O	I2C1_SDA	
60	BOOT0	Boot		
61	PB8	I/O	CAN1_RX	
62	PB9	I/O	CAN1_TX	
63	VSS	Power		
64	VDD	Power		

* The pin is affected with an I/O function

4. IPs and Middleware Configuration

4.1. CAN1

mode: Mode

Bit Timings Parameters:

Prescaler (for Time Quantum)	16
Time Quantum	**666.6666666666666 ***
Time Quanta in Bit Segment 1	1 Time
Time Quanta in Bit Segment 2	1 Time
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

4.2. CAN2

mode: Mode

Bit Timings Parameters:

Prescaler (for Time Quantum)	16
Time Quantum	**666.6666666666666 ***
Time Quanta in Bit Segment 1	1 Time
Time Quanta in Bit Segment 2	1 Time
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

4.3. I2C1

I2C: I2C

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

4.4. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

System Parameters:

VDD voltage (V)	3.3
Instruction Cache	Enabled
Prefetch Buffer	Enabled
Data Cache	Enabled
Flash Latency(WS)	1 WS (2 CPU cycle)

RCC Parameters:

HSI Calibration Value	16

4.5. RTC

RTC OUT: No RTC Output

General:

Auto Predivider Calculation	Enabled
Asynchronous Predivider value	Automatic Predivider Calculation Enabled
Output	No output on the TAMPER pin

Calendar Time:

Data Format	BCD data format

4.6. TIM6

mode: Activated

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)

4.7. USB_OTG_FS

Mode: Device_Only

mode: Activate_VBUS

Speed	Device Full Speed 12MBit/s
Endpoint 0 Max Packet size	64 Bytes
Low power	Disabled
VBUS sensing	Disabled

4.8. FREERTOS

mode: Enabled

Versions:

CMSIS-RTOS version	1.02
FreeRTOS version	8.1.2

Kernel settings:

USE_PREEMPTION	Enabled
CPU_CLOCK_HZ	SystemCoreClock
TICK_RATE_HZ	1000
MAX_PRIORITIES	7
MINIMAL_STACK_SIZE	128
MAX_TASK_NAME_LEN	16
USE_16_BIT_TICKS	Disabled
IDLE_SHOULD_YIELD	Enabled
USE_MUTEXES	Enabled

USE_RECURSIVE_MUTEXES	Enabled
USE_COUNTING_SEMAPHORES	Enabled
QUEUE_REGISTRY_SIZE	8
USE_APPLICATION_TASK_TAG	Disabled
TOTAL_HEAP_SIZE	3072
Memory Management scheme	heap_4
USE_ALTERNATIVE_API	Disabled
ENABLE_BACKWARD_COMPATIBILITY	Enabled
USE_PORT_OPTIMISED_TASK_SELECTION	Disabled

Hook function related definitions:

USE_IDLE_HOOK	Disabled
USE_TICK_HOOK	Disabled
USE_MALLOC_FAILED_HOOK	Disabled
CHECK_FOR_STACK_OVERFLOW	Disabled

Run time and task stats gathering related definitions:

USE_TRACE_FACILITY	Enabled
GENERATE_RUN_TIME_STATS	Disabled

Co-routine related definitions:

USE_CO_ROUTINES	Disabled
MAX_CO_ROUTINE_PRIORITIES	2

Software timer definitions:

USE_TIMERS	Disabled
TIMER_TASK_PRIORITY	2
TIMER_QUEUE_LENGTH	10

Interrupt nesting behaviour configuration:

LIBRARY_LOWEST_INTERRUPT_PRIORITY	15
LIBRARY_MAX_SYSCALL_INTERRUPT_PRIORITY	5

Include definitions:

vTaskPrioritySet	Enabled
uxTaskPriorityGet	Enabled
vTaskDelete	Enabled
vTaskCleanUpResources	Disabled
vTaskSuspend	Enabled
vTaskDelayUntil	Disabled
vTaskDelay	Enabled
xTaskGetSchedulerState	Enabled
xTaskResumeFromISR	Enabled
xQueueGetMutexHolder	Disabled
xSemaphoreGetMutexHolder	Disabled
pcTaskGetTaskName	Disabled
uxTaskGetStackHighWaterMark	Disabled

xTaskGetCurrentTaskHandle	Disabled
eTaskGetState	Disabled
xEventGroupSetBitFromISR	Disabled
xTimerPendFunctionCall	Disabled

4.9. USB_DEVICE

Class For FS IP: Communication Device Class (Virtual Port Com)

Basic Parameters:

USBD_MAX_NUM_INTERFACES (Maximum number of supported interfaces)	1
USBD_MAX_NUM_CONFIGURATION (Maximum number of supported configuration)	1
USBD_MAX_STR_DESC_SIZ (Maximum size for the string descriptors)	512
USBD_SUPPORT_USER_STRING (Enable user string descriptor)	Disabled
USBD_SELF_POWERED (Enabled self power)	Enabled
USBD_DEBUG_LEVEL (USBD Debug Level)	0: No debug message

Device Descriptor:

VID (Vendor IDentifier)	1155
LANGID_STRING (Language Identifier)	English(United States)
MANUFACTURER_STRING (Manufacturer Identifier)	STMicroelectronics

Device Descriptor FS:

PID (Product IDentifier)	22336
PRODUCT_STRING (Product Identifier)	STM32 Virtual ComPort
SERIALNUMBER_STRING (Serial number)	00000000001A
CONFIGURATION_STRING (Configuration Identifier)	CDC Config
INTERFACE_STRING (Interface Identifier)	CDC Interface

Class Parameters:

USBD_CDC_INTERVAL (Number of micro-frames interval)	1000

*** User modified value**

5. System Configuration

5.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
CAN1	PB8	CAN1_RX	Input mode	No pull-up and no pull-down	n/a	
	PB9	CAN1_TX	Alternate Function Push Pull	n/a	**High ***	
CAN2	PB12	CAN2_RX	Input mode	No pull-up and no pull-down	n/a	
	PB13	CAN2_TX	Alternate Function Push Pull	n/a	**High ***	
I2C1	PB6	I2C1_SCL	Alternate Function Open Drain	n/a	**High ***	
	PB7	I2C1_SDA	Alternate Function Open Drain	n/a	**High ***	
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	
USB_OTG_FS	PA9	USB_OTG_FS_VBUS	Input mode	No pull-up and no pull-down	n/a	
	PA11	USB_OTG_FS_DM	n/a	n/a	n/a	
	PA12	USB_OTG_FS_DP	n/a	n/a	n/a	
GPIO	PC0	GPIO_Output	Output Push Pull	n/a	Low	
	PC1	GPIO_Output	Output Push Pull	n/a	Low	
	PC3	GPIO_EXTI3	External Event Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	

5.2. DMA configuration

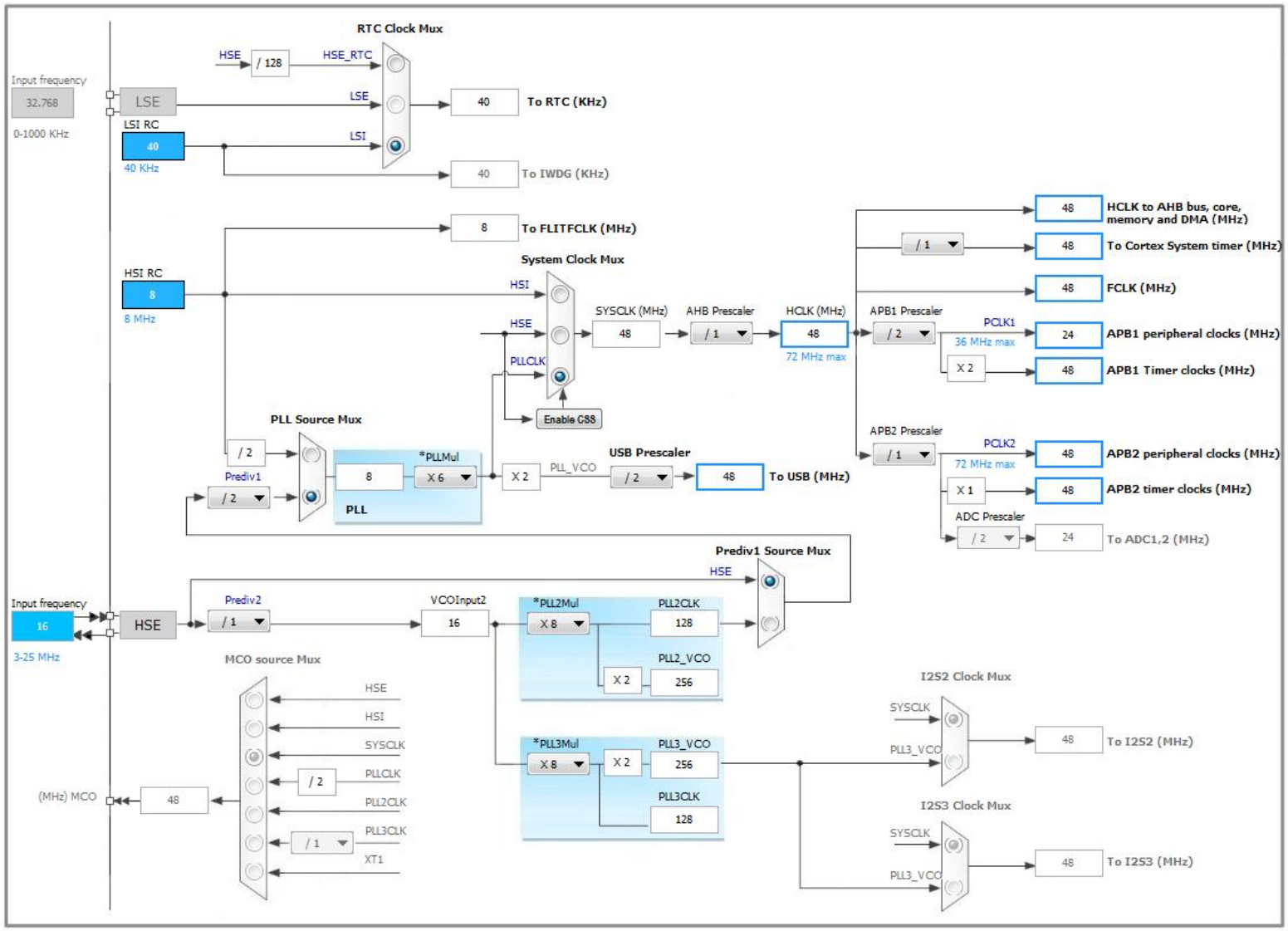
nothing configured in DMA service

5.3. NVIC configuration

Interrupt Table	Enable	Preenmption Priority	SubPriority
System tick timer	true	0	0
RTC global interrupt	true	5	0
CAN1 RX0 interrupt	true	5	0
I2C1 event interrupt	true	5	0
CAN2 RX0 interrupt	true	5	0
USB OTG FS global interrupt	true	5	0
Non maskable interrupt	unused		
Memory management fault	unused		
Prefetch fault, memory access fault	unused		
Undefined instruction or illegal state	unused		
Debug monitor	unused		
PVD interrupt through EXTI line 16	unused		
RCC global interrupt	unused		
CAN1 TX interrupt	unused		
CAN1 RX1 interrupt	unused		
CAN1 SCE interrupt	unused		
I2C1 error interrupt	unused		
RTC alarm interrupt through EXTI line 17	unused		
TIM6 global interrupt	unused		
CAN2 TX interrupt	unused		
CAN2 RX1 interrupt	unused		
CAN2 SCE interrupt	unused		

*** User modified value**

6. Clock Tree Configuration



7. Power Plugin report

7.1. Microcontroller Selection

Series	STM32F1
Line	STM32F105/107
MCU	STM32F105RCTx
Datasheet	15274_Rev7

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	usb_can
Project Folder	C:\Users\\Desktop\CAN\ \home_work_can\usb_can_exp
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_F1 V1.1.0

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

8.3. Toolchains Settings

Name	Value
Compiler Optimizations	Balanced Size/Speed