1. Description

1.1. Project

Project Name	Console_usb
Board Name	Console_usb
Generated with:	STM32CubeMX 4.26.0
Date	09/19/2018

1.2. MCU

MCU Series	STM32F1
MCU Line	STM32F103
MCU name	STM32F103RETx
MCU Package	LQFP64
MCU Pin number	64

2. Pinout Configuration
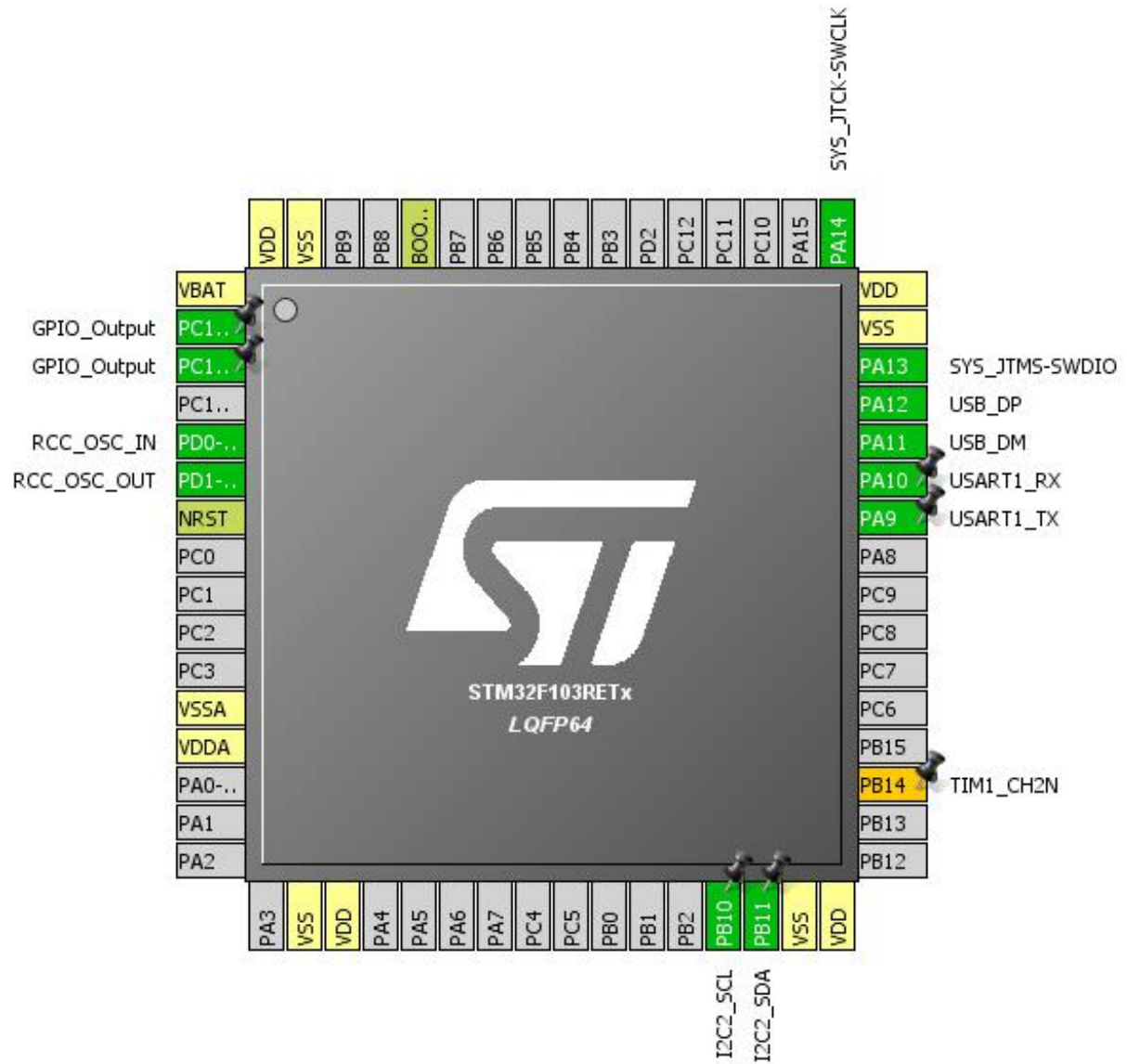
3. Pins Configuration

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
2	PC13-TAMPER-RTC *	I/O	GPIO_Output	
3	PC14-OSC32_IN *	I/O	GPIO_Output	
5	PD0-OSC_IN	I/O	RCC_OSC_IN	
6	PD1-OSC_OUT	I/O	RCC_OSC_OUT	
7	NRST	Reset		
12	VSSA	Power		
13	VDDA	Power		
18	VSS	Power		
19	VDD	Power		
29	PB10	I/O	I2C2_SCL	
30	PB11	I/O	I2C2_SDA	
31	VSS	Power		
32	VDD	Power		
35	PB14 **	I/O	TIM1_CH2N	
42	PA9	I/O	USART1_TX	
43	PA10	I/O	USART1_RX	
44	PA11	I/O	USB_DM	
45	PA12	I/O	USB_DP	
46	PA13	I/O	SYS_JTMS-SWDIO	
47	VSS	Power		
48	VDD	Power		
49	PA14	I/O	SYS_JTCK-SWCLK	
60	BOOT0	Boot		
63	VSS	Power		
64	VDD	Power		

 * The pin is affected with an I/O function

** The pin is affected with a peripheral function but no peripheral mode is activated

4. Clock Tree Configuration
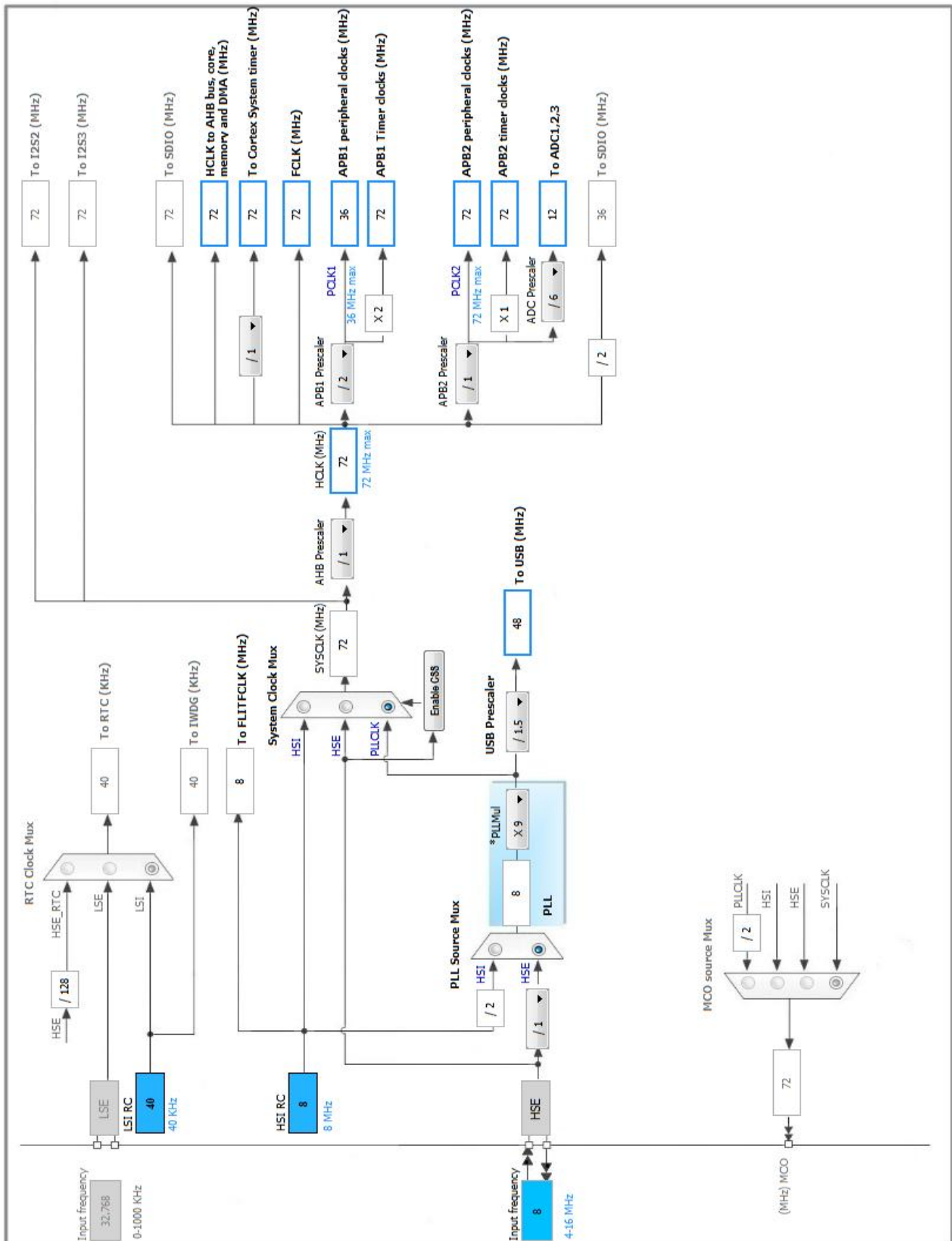
5. IPs and Middleware Configuration

5.1. ADC1

mode: Temperature Sensor Channel

5.1.1. Parameter Settings:

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

Data Alignment	Right alignment
Scan Conversion Mode	Enabled
Continuous Conversion Mode	**Enabled ***
Discontinuous Conversion Mode	Disabled

<html><img src='jar:file:C:/Program Files/STMicroelectronics/STM32Cube/STM32CubeMX/plugins/ipmanager.jar!/com/st/microxplorer/plugins/ipmanager/util/error10x10.png'   ADC_Regular_ConversionMode</html>:

Enable Regular Conversions	Enable
Number Of Conversion	**4 ***
External Trigger Conversion Source	Regular Conversion launched by software
Rank	1
Channel	**Channel 9 ***
Sampling Time	**55.5 Cycles ***
Rank	**2 ***
Channel	**Channel 5 ***
Sampling Time	**55.5 Cycles ***
Rank	**3 ***
Channel	**Channel 6 ***
Sampling Time	**55.5 Cycles ***
Rank	**4 ***
Channel	Channel Temperature Sensor
Sampling Time	**55.5 Cycles ***

ADC_Injected_ConversionMode:

Number Of Conversions	0

WatchDog:

Enable Analog WatchDog Mode	false

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. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

5.3.1. 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 Timout Value (ms)	100
LSE Startup Timout Value (ms)	5000

5.4. SYS

Debug: Serial Wire

Timebase Source: SysTick

5.5. USART1

Mode: Asynchronous

5.5.1. Parameter Settings:

Basic Parameters:

Baud Rate	**9600** *
Word Length	8 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples

5.6. USB
mode: Device (FS)
5.6.1. Parameter Settings:

Basic Parameters:

Speed	Full Speed 12MBit/s
Endpoint 0 Max Packet size	8 Bytes

Power Parameters:

Low Power	Disabled
Link Power Management	Disabled
Battery Charging	Disabled

5.7. FREERTOS
mode: Enabled
5.7.1. Config parameters:

Versions:

FreeRTOS version	9.0.0
CMSIS-RTOS version	1.02

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	**Enabled ***
ENABLE_BACKWARD_COMPATIBILITY	Enabled
USE_PORT_OPTIMISED_TASK_SELECTION	Enabled
USE_TICKLESS_IDLE	**Enabled ***
USE_TASK_NOTIFICATIONS	Enabled

Memory management settings:

Memory Allocation	Dynamic
TOTAL_HEAP_SIZE	**5000 ***
Memory Management scheme	heap_4

Hook function related definitions:

USE_IDLE_HOOK	**Enabled ***
USE_TICK_HOOK	**Enabled ***
USE_MALLOC_FAILED_HOOK	**Enabled ***
USE_DAEMON_TASK_STARTUP_HOOK	Disabled
CHECK_FOR_STACK_OVERFLOW	Disabled

Run time and task stats gathering related definitions:

GENERATE_RUN_TIME_STATS	**Enabled ***
USE_TRACE_FACILITY	Disabled
USE_STATS_FORMATTING_FUNCTIONS	Disabled

Co-routine related definitions:

USE_CO_ROUTINES	**Enabled ***
MAX_CO_ROUTINE_PRIORITIES	2

Software timer definitions:

USE_TIMERS	Disabled

Interrupt nesting behaviour configuration:

LIBRARY_LOWEST_INTERRUPT_PRIORITY	15
LIBRARY_MAX_SYSCALL_INTERRUPT_PRIORITY	5

5.7.2. Include parameters:

Include definitions:

vTaskPrioritySet	Enabled

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

5.8. USB_DEVICE

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

5.8.1. Parameter Settings:

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

Class Parameters:

USB CDC Rx Buffer Size	1000
USB CDC Tx Buffer Size	1000

5.8.2. Device Descriptor:

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

* User modified value

6. System Configuration

6.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
I2C2	PB10	I2C2_SCL	Alternate Function Open Drain	n/a	**High ***	
	PB11	I2C2_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	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
USART1	PA9	USART1_TX	Alternate Function Push Pull	n/a	**High ***	
	PA10	USART1_RX	Input mode	No pull-up and no pull-down	**n/a**	
USB	PA11	USB_DM	n/a	n/a	n/a	
	PA12	USB_DP	n/a	n/a	n/a	
Single Mapped Signals	PB14	TIM1_CH2N	Alternate Function Push Pull	n/a	Low	
GPIO	PC13-TAMPER-RTC	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PC14-OSC32_IN	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	

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	15	0
System tick timer	true	15	0
USB low priority or CAN RX0 interrupts	true	0	0
USART1 global interrupt	true	5	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1 and ADC2 global interrupts	unused		
USB high priority or CAN TX interrupts	unused		
I2C2 event interrupt	unused		
I2C2 error interrupt	unused		

* User modified value

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F1
Line	STM32F103
MCU	STM32F103RETx
Datasheet	14611_Rev12

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	Console_usb
Project Folder	E:\my_projects\temp_balancer\src\codegen
Toolchain / IDE	TrueSTUDIO
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

9. Software Pack Report