

1. Description

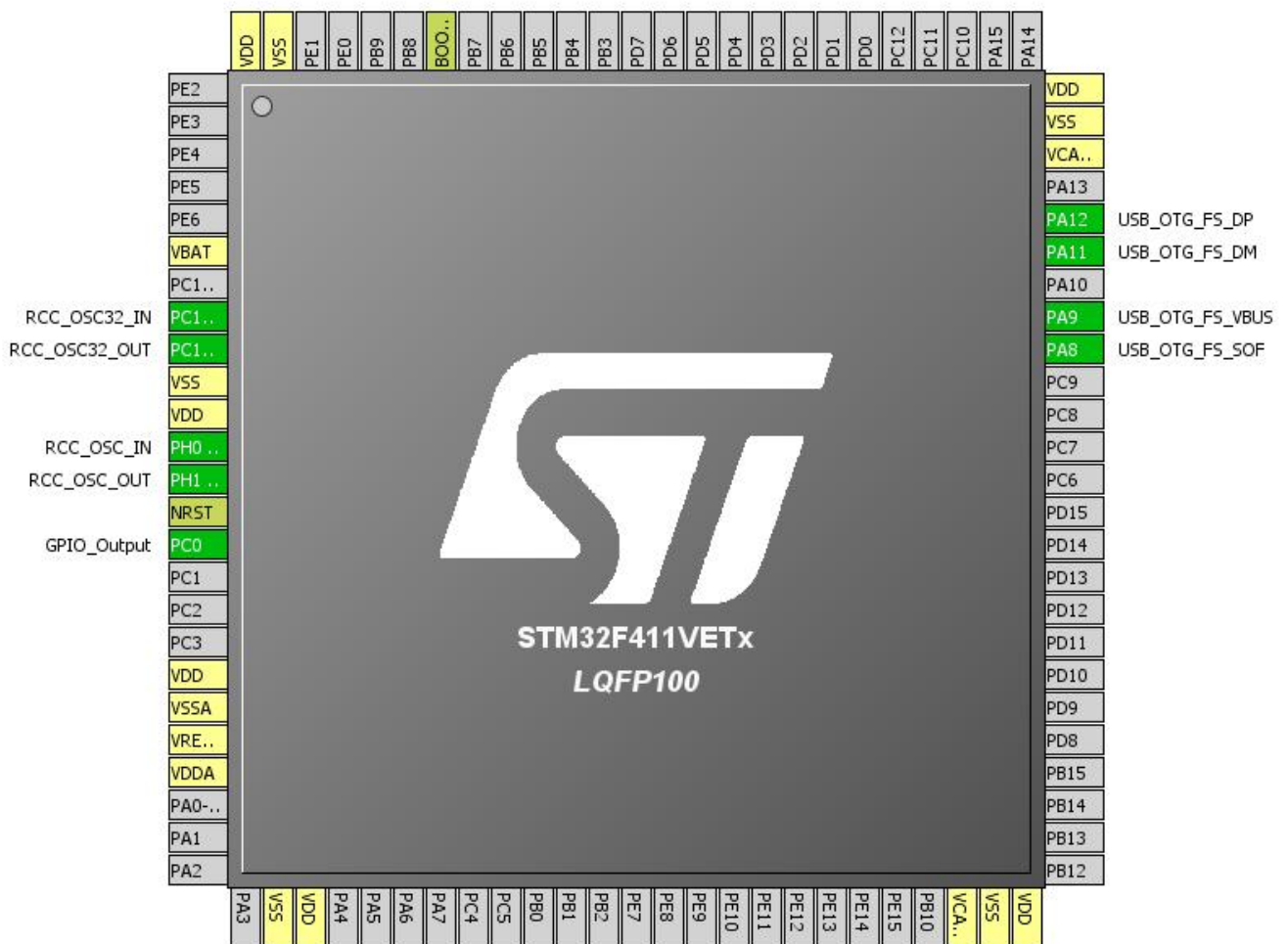
1.1. Project

Project Name	UsbDemoNew
Board Name	UsbDemoNew
Generated with:	STM32CubeMX 4.19.0
Date	02/08/2017

1.2. MCU

MCU Series	STM32F4
MCU Line	STM32F411
MCU name	STM32F411VETx
MCU Package	LQFP100
MCU Pin number	100

2. Pinout Configuration

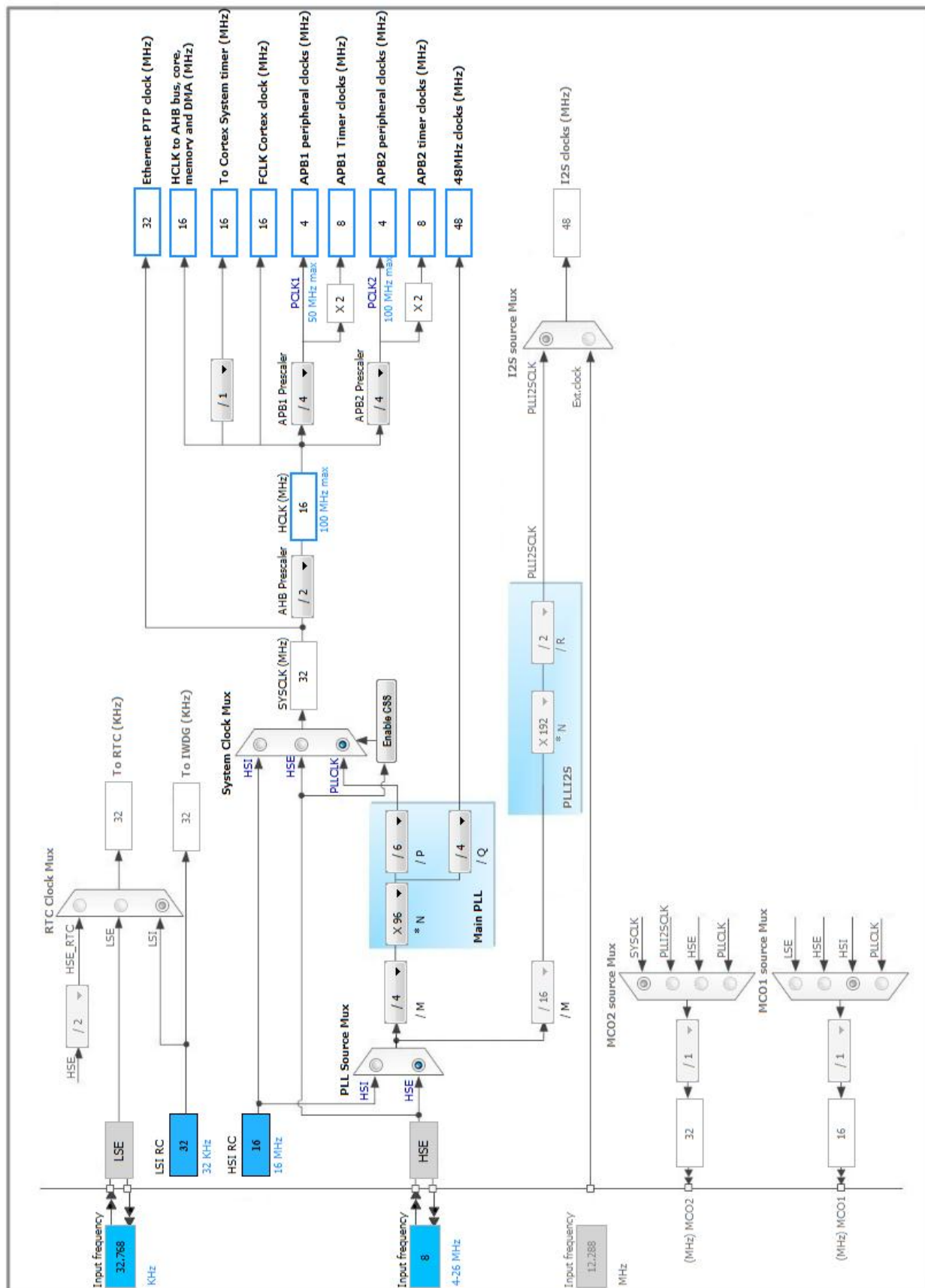


3. Pins Configuration

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	
9	PC15-OSC32_OUT	I/O	RCC_OSC32_OUT	
10	VSS	Power		
11	VDD	Power		
12	PH0 - OSC_IN	I/O	RCC_OSC_IN	
13	PH1 - OSC_OUT	I/O	RCC_OSC_OUT	
14	NRST	Reset		
15	PC0 *	I/O	GPIO_Output	
19	VDD	Power		
20	VSSA	Power		
21	VREF+	Power		
22	VDDA	Power		
27	VSS	Power		
28	VDD	Power		
48	VCAP1	Power		
49	VSS	Power		
50	VDD	Power		
67	PA8	I/O	USB_OTG_FS_SOF	
68	PA9	I/O	USB_OTG_FS_VBUS	
70	PA11	I/O	USB_OTG_FS_DM	
71	PA12	I/O	USB_OTG_FS_DP	
73	VCAP2	Power		
74	VSS	Power		
75	VDD	Power		
94	BOOT0	Boot		
99	VSS	Power		
100	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

Low Speed Clock (LSE) : Crystal/Ceramic Resonator

5.1.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Instruction Cache	Enabled
Prefetch Buffer	Enabled
Data Cache	Enabled
Flash Latency(WS)	0 WS (1 CPU cycle)

RCC Parameters:

HSI Calibration Value	16
TIM Prescaler Selection	Disabled
HSE Startup Timeout Value (ms)	100
LSE Startup Timeout Value (ms)	5000

Power Parameters:

Power Regulator Voltage Scale	Power Regulator Voltage Scale 1
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5.2. SYS

Timebase Source: SysTick

5.3. USB_OTG_FS

Mode: Device_Only

mode: Activate_SOF

mode: Activate_VBUS

5.3.1. Parameter Settings:

Speed	Device Full Speed 12MBit/s
Endpoint 0 Max Packet size	64 Bytes
Enable internal IP DMA	Disabled
Low power	Disabled

Link Power Management	Disabled
VBUS sensing	Enabled
Signal start of frame	Enabled

5.4. USB_DEVICE

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

5.4.1. Parameter Settings:

Basic Parameters:

VirtualMode	Cdc
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)	Enabled *
USBD_SELF_POWERED (Enabled self power)	Enabled
USBD_DEBUG_LEVEL (USBD Debug Level)	3: All messages and internal debug messages are shown *

Class Parameters:

USBD_CDC_INTERVAL (Number of micro-frames interval)	1000
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5.4.2. 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
RCC	PC14-OSC32_IN	RCC_OSC32_IN	n/a	n/a	n/a	
	PC15-OSC32_OUT	RCC_OSC32_OUT	n/a	n/a	n/a	
	PH0 - OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PH1 - OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
USB_OTG_FS	PA8	USB_OTG_FS_SOF	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
	PA9	USB_OTG_FS_VBUS	Input mode	No pull-up and no pull-down	n/a	
	PA11	USB_OTG_FS_DM	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
	PA12	USB_OTG_FS_DP	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
GPIO	PC0	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
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
USB On The Go FS global interrupt	true	0	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
FPU global interrupt	unused		

* User modified value

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F4
Line	STM32F411
MCU	STM32F411VETx
Datasheet	026289_Rev4

7.2. Parameter Selection

Temperature	25
Vdd	null

8. Software Project

8.1. Project Settings

Name	Value
Project Name	UsbDemoNew
Project Folder	E:\STM\STM_Programming\EWARM\OpticalReader\USBDemo\UsbDemoNew
Toolchain / IDE	EWARM
Firmware Package Name and Version	STM32Cube FW_F4 V1.14.0

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