1. Description

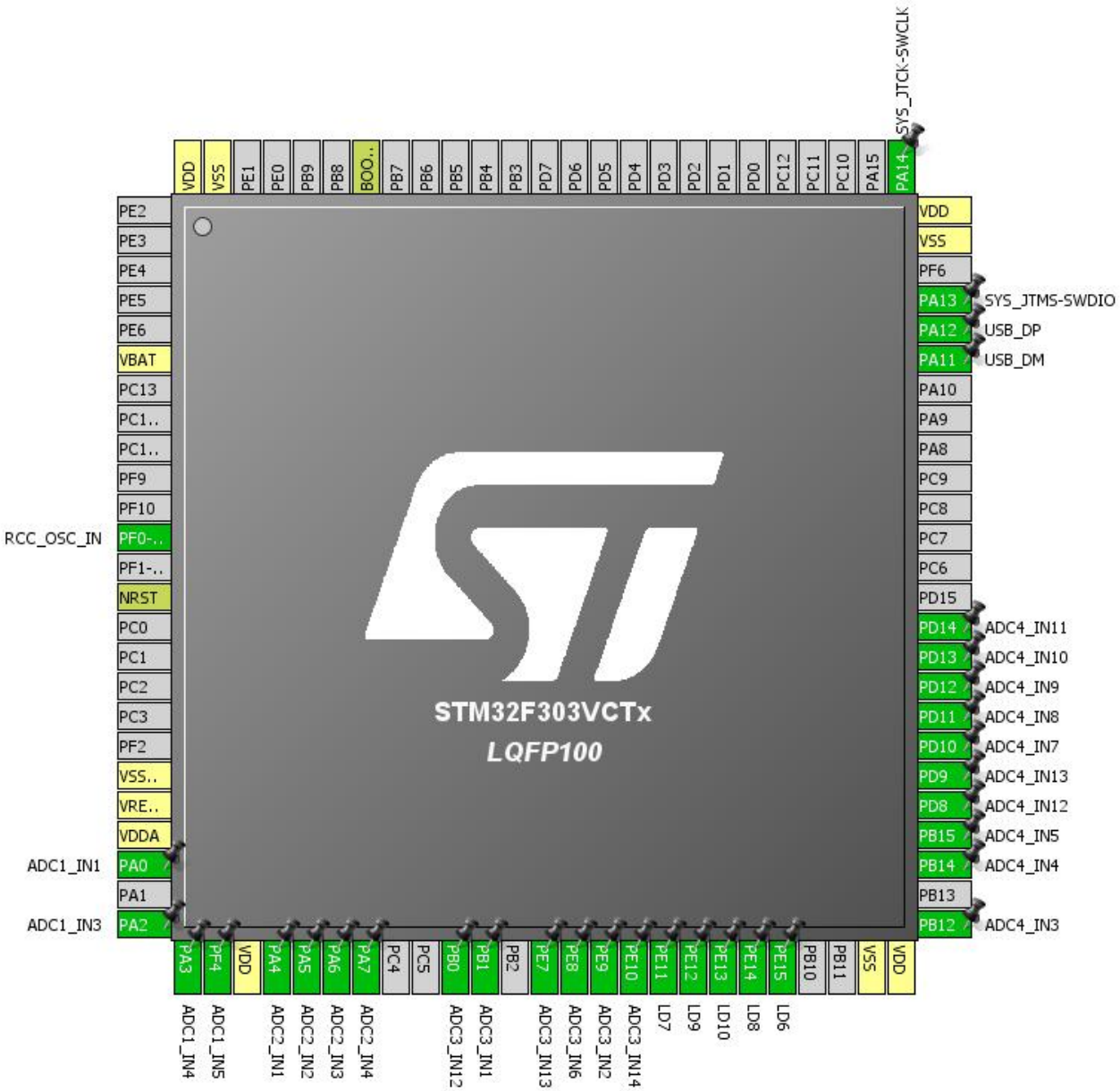
1.1. Project

Project Name	sensglove2
Board Name	sensglove2
Generated with:	STM32CubeMX 4.20.1
Date	06/11/2017

1.2. MCU

MCU Series	STM32F3
MCU Line	STM32F303
MCU name	STM32F303VCTx
MCU Package	LQFP100
MCU Pin number	100

2. Pinout Configuration



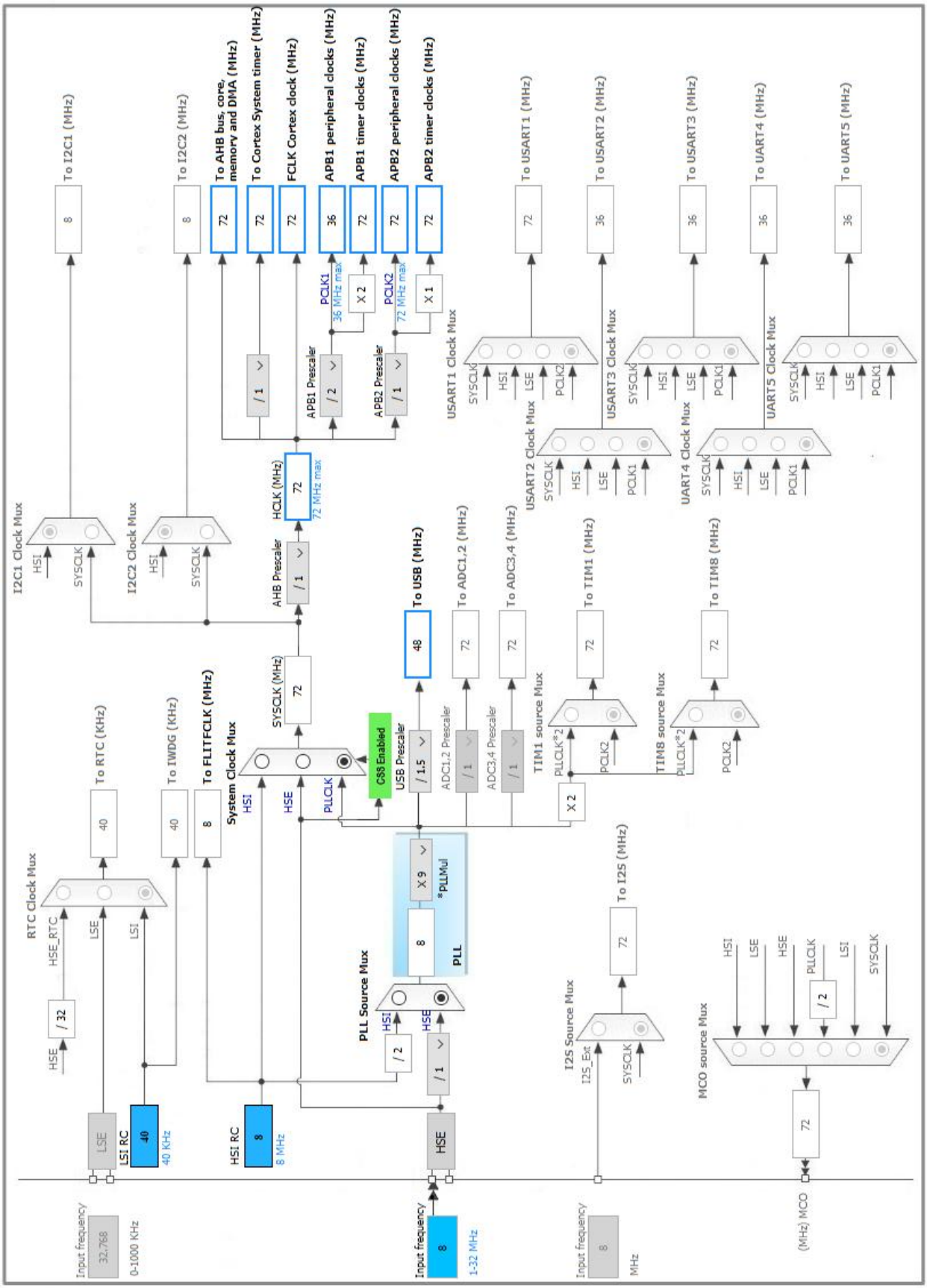
3. Pins Configuration

Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
6	VBAT	Power		
12	PF0-OSC_IN	I/O	RCC_OSC_IN	
14	NRST	Reset		
20	VSSA/VREF-	Power		
21	VREF+	Power		
22	VDDA	Power		
23	PA0	I/O	ADC1_IN1	
25	PA2	I/O	ADC1_IN3	
26	PA3	I/O	ADC1_IN4	
27	PF4	I/O	ADC1_IN5	
28	VDD	Power		
29	PA4	I/O	ADC2_IN1	
30	PA5	I/O	ADC2_IN2	
31	PA6	I/O	ADC2_IN3	
32	PA7	I/O	ADC2_IN4	
35	PB0	I/O	ADC3_IN12	
36	PB1	I/O	ADC3_IN1	
38	PE7	I/O	ADC3_IN13	
39	PE8	I/O	ADC3_IN6	
40	PE9	I/O	ADC3_IN2	
41	PE10	I/O	ADC3_IN14	
42	PE11 *	I/O	GPIO_Output	LD7
43	PE12 *	I/O	GPIO_Output	LD9
44	PE13 *	I/O	GPIO_Output	LD10
45	PE14 *	I/O	GPIO_Output	LD8
46	PE15 *	I/O	GPIO_Output	LD6
49	VSS	Power		
50	VDD	Power		
51	PB12	I/O	ADC4_IN3	
53	PB14	I/O	ADC4_IN4	
54	PB15	I/O	ADC4_IN5	
55	PD8	I/O	ADC4_IN12	
56	PD9	I/O	ADC4_IN13	
57	PD10	I/O	ADC4_IN7	
58	PD11	I/O	ADC4_IN8	
59	PD12	I/O	ADC4_IN9	

Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
60	PD13	I/O	ADC4_IN10	
61	PD14	I/O	ADC4_IN11	
70	PA11	I/O	USB_DM	
71	PA12	I/O	USB_DP	
72	PA13	I/O	SYS_JTMS-SWDIO	
74	VSS	Power		
75	VDD	Power		
76	PA14	I/O	SYS_JTCK-SWCLK	
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. ADC1

IN1: IN1 Single-ended

IN3: IN3 Single-ended

IN4: IN4 Single-ended

IN5: IN5 Single-ended

5.1.1. Parameter Settings:

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

Clock Prescaler	**Synchronous clock mode divided by 1 ***
Resolution	ADC 12-bit resolution
Data Alignment	Right alignment
Scan Conversion Mode	Enabled
Continuous Conversion Mode	**Enabled ***
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	**Enabled ***
End Of Conversion Selection	**End of sequence of conversion ***
Overrun behaviour	Overrun data overwritten
Low Power Auto Wait	Disabled

ADC_Regular_ConversionMode:

Enable Regular Conversions	Enable
Number Of Conversion	**4 ***
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None
Rank	1
Channel	**Channel 5 ***
Sampling Time	**601.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**2 ***
Channel	**Channel 3 ***
Sampling Time	**601.5 Cycles ***
Offset Number	No offset

Offset	0
Rank	**3 ***
Channel	**Channel 4 ***
Sampling Time	**601.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**4 ***
Channel	Channel 1
Sampling Time	**601.5 Cycles ***
Offset Number	No offset
Offset	0

ADC_Injected_ConversionMode:

Enable Injected Conversions	Enable
Number Of Conversions	0

Analog Watchdog 1:

Enable Analog WatchDog1 Mode	false

Analog Watchdog 2:

Enable Analog WatchDog2 Mode	false

Analog Watchdog 3:

Enable Analog WatchDog3 Mode	false

5.2. ADC2

IN1: IN1 Single-ended

IN2: IN2 Single-ended

IN3: IN3 Single-ended

IN4: IN4 Single-ended

5.2.1. Parameter Settings:

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

Clock Prescaler	**Synchronous clock mode divided by 1 ***
Resolution	ADC 12-bit resolution
Data Alignment	Right alignment
Scan Conversion Mode	Enabled
Continuous Conversion Mode	**Enabled ***

Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	**Enabled ***
End Of Conversion Selection	**End of sequence of conversion ***
Overrun behaviour	Overrun data overwritten
Low Power Auto Wait	Disabled

ADC_Regular_ConversionMode:

Enable Regular Conversions	Enable
Number Of Conversion	**4 ***
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None
Rank	1
Channel	**Channel 4 ***
Sampling Time	**601.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**2 ***
Channel	**Channel 3 ***
Sampling Time	**601.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**3 ***
Channel	**Channel 2 ***
Sampling Time	**601.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**4 ***
Channel	Channel 1
Sampling Time	**601.5 Cycles ***
Offset Number	No offset
Offset	0

ADC_Injected_ConversionMode:

Enable Injected Conversions	Enable
Number Of Conversions	0

Analog Watchdog 1:

Enable Analog WatchDog1 Mode	false

Analog Watchdog 2:

Enable Analog WatchDog2 Mode	false

Analog Watchdog 3:

Enable Analog WatchDog3 Mode	false

5.3. ADC3

IN1: IN1 Single-ended
IN2: IN2 Single-ended
IN6: IN6 Single-ended
IN12: IN12 Single-ended
IN13: IN13 Single-ended
IN14: IN14 Single-ended

5.3.1. Parameter Settings:

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

Clock Prescaler	**Synchronous clock mode divided by 1 ***
Resolution	ADC 12-bit resolution
Data Alignment	Right alignment
Scan Conversion Mode	Enabled
Continuous Conversion Mode	**Enabled ***
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	**Enabled ***
End Of Conversion Selection	**End of sequence of conversion ***
Overrun behaviour	Overrun data overwritten
Low Power Auto Wait	Disabled

ADC_Regular_ConversionMode:

Enable Regular Conversions	Enable
Number Of Conversion	**6 ***
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None
Rank	1
Channel	**Channel 14 ***
Sampling Time	**181.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**2 ***
Channel	**Channel 2 ***
Sampling Time	**181.5 Cycles ***

Offset Number	No offset
Offset	0
Rank	**3 ***
Channel	**Channel 6 ***
Sampling Time	**181.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**4 ***
Channel	**Channel 13 ***
Sampling Time	**181.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**5 ***
Channel	Channel 1
Sampling Time	**181.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**6 ***
Channel	**Channel 12 ***
Sampling Time	**181.5 Cycles ***
Offset Number	No offset
Offset	0

ADC_Injected_ConversionMode:

Enable Injected Conversions	Enable
Number Of Conversions	0

Analog Watchdog 1:

Enable Analog WatchDog1 Mode	false

Analog Watchdog 2:

Enable Analog WatchDog2 Mode	false

Analog Watchdog 3:

Enable Analog WatchDog3 Mode	false

5.4. ADC4

IN3: IN3 Single-ended

IN4: IN4 Single-ended

IN5: IN5 Single-ended

IN7: IN7 Single-ended
IN8: IN8 Single-ended
IN9: IN9 Single-ended
IN10: IN10 Single-ended
IN11: IN11 Single-ended
IN12: IN12 Single-ended
mode: IN13

5.4.1. Parameter Settings:

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

Clock Prescaler	**Synchronous clock mode divided by 1 ***
Resolution	ADC 12-bit resolution
Data Alignment	Right alignment
Scan Conversion Mode	Enabled
Continuous Conversion Mode	**Enabled ***
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	**Enabled ***
End Of Conversion Selection	**End of sequence of conversion ***
Overrun behaviour	Overrun data overwritten
Low Power Auto Wait	Disabled

ADC_Regular_ConversionMode:

Enable Regular Conversions	Enable
Number Of Conversion	**10 ***
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None
Rank	1
Channel	**Channel 11 ***
Sampling Time	**181.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**2 ***
Channel	**Channel 10 ***
Sampling Time	**181.5 Cycles ***
Offset Number	No offset
Offset	0

Rank	**3 ***
Channel	**Channel 9 ***
Sampling Time	**181.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**4 ***
Channel	**Channel 8 ***
Sampling Time	**181.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**5 ***
Channel	**Channel 7 ***
Sampling Time	**181.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**6 ***
Channel	**Channel 13 ***
Sampling Time	**181.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**7 ***
Channel	**Channel 12 ***
Sampling Time	**181.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**8 ***
Channel	**Channel 5 ***
Sampling Time	**181.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**9 ***
Channel	**Channel 4 ***
Sampling Time	**181.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**10 ***
Channel	Channel 3
Sampling Time	**181.5 Cycles ***

Offset Number	No offset
Offset	0

ADC_Injected_ConversionMode:

Enable Injected Conversions	Enable
Number Of Conversions	0

Analog Watchdog 1:

Enable Analog WatchDog1 Mode	false

Analog Watchdog 2:

Enable Analog WatchDog2 Mode	false

Analog Watchdog 3:

Enable Analog WatchDog3 Mode	false

5.5. RCC

High Speed Clock (HSE): BYPASS Clock Source

5.5.1. 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

5.6. SYS

Debug: Serial Wire

Timebase Source: SysTick

5.7. TIM6

mode: Activated

5.7.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**htim6_PSC ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**htim6_ARR ***
auto-reload preload	Disable

Trigger Output (TRGO) Parameters:

Trigger Event Selection	Reset (UG bit from TIMx_EGR)

5.8. USB

mode: Device (FS)

5.8.1. Parameter Settings:

Basic Parameters:

Speed	Full Speed 12MBit/s
Endpoint 0 Max Packet size	64 Bytes
Physical interface	Internal Phy

Power Parameters:

Low Power	Disabled
Battery Charging	Disabled

5.9. USB_DEVICE

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

5.9.1. 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)	**Enabled ***
USBD_SELF_POWERED (Enabled self power)	Enabled
USBD_DEBUG_LEVEL (USBD Debug Level)	0: No debug message

Class Parameters:

USBD_CDC_INTERVAL (Number of micro-frames interval)	1000

5.9.2. Device Descriptor:

Device Descriptor:

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

Device Descriptor FS:

PID (Product IDentifier)	22336
PRODUCT_STRING (Product Identifier)	**SensGlove MU ***
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
ADC1	PA0	ADC1_IN1	Analog mode	No pull up pull down	n/a	
	PA2	ADC1_IN3	Analog mode	No pull up pull down	n/a	
	PA3	ADC1_IN4	Analog mode	No pull up pull down	n/a	
	PF4	ADC1_IN5	Analog mode	No pull up pull down	n/a	
ADC2	PA4	ADC2_IN1	Analog mode	No pull up pull down	n/a	
	PA5	ADC2_IN2	Analog mode	No pull up pull down	n/a	
	PA6	ADC2_IN3	Analog mode	No pull up pull down	n/a	
	PA7	ADC2_IN4	Analog mode	No pull up pull down	n/a	
ADC3	PB0	ADC3_IN12	Analog mode	No pull up pull down	n/a	
	PB1	ADC3_IN1	Analog mode	No pull up pull down	n/a	
	PE7	ADC3_IN13	Analog mode	No pull up pull down	n/a	
	PE8	ADC3_IN6	Analog mode	No pull up pull down	n/a	
	PE9	ADC3_IN2	Analog mode	No pull up pull down	n/a	
	PE10	ADC3_IN14	Analog mode	No pull up pull down	n/a	
ADC4	PB12	ADC4_IN3	Analog mode	No pull up pull down	n/a	
	PB14	ADC4_IN4	Analog mode	No pull up pull down	n/a	
	PB15	ADC4_IN5	Analog mode	No pull up pull down	n/a	
	PD8	ADC4_IN12	Analog mode	No pull up pull down	n/a	
	PD9	ADC4_IN13	Analog mode	No pull up pull down	n/a	
	PD10	ADC4_IN7	Analog mode	No pull up pull down	n/a	
	PD11	ADC4_IN8	Analog mode	No pull up pull down	n/a	
	PD12	ADC4_IN9	Analog mode	No pull up pull down	n/a	
	PD13	ADC4_IN10	Analog mode	No pull up pull down	n/a	
	PD14	ADC4_IN11	Analog mode	No pull up pull down	n/a	
RCC	PF0-OSC_IN	RCC_OSC_IN	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	
USB	PA11	USB_DM	Alternate Function Push Pull	No pull up pull down	**High ***	
	PA12	USB_DP	Alternate Function Push Pull	No pull up pull down	**High ***	
GPIO	PE11	GPIO_Output	Output Push Pull	No pull up pull down	Low	LD7
	PE12	GPIO_Output	Output Push Pull	No pull up pull down	Low	LD9
	PE13	GPIO_Output	Output Push Pull	No pull up pull down	Low	LD10

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PE14	GPIO_Output	Output Push Pull	No pull up pull down	Low	LD8
	PE15	GPIO_Output	Output Push Pull	No pull up pull down	Low	LD6

6.2. DMA configuration

DMA request	Stream	Direction	Priority
ADC3	DMA2_Channel5	Peripheral To Memory	**Medium ***
ADC2	DMA2_Channel1	Peripheral To Memory	**High ***
ADC1	DMA1_Channel1	Peripheral To Memory	**High ***
ADC4	DMA2_Channel2	Peripheral To Memory	**Medium ***

ADC3: DMA2_Channel5 DMA request Settings:

Mode:	**Circular ***
Peripheral Increment:	Disable
Memory Increment:	**Enable ***
Peripheral Data Width:	Half Word
Memory Data Width:	Half Word

ADC2: DMA2_Channel1 DMA request Settings:

Mode:	**Circular ***
Peripheral Increment:	Disable
Memory Increment:	**Enable ***
Peripheral Data Width:	Half Word
Memory Data Width:	Half Word

ADC1: DMA1_Channel1 DMA request Settings:

Mode:	**Circular ***
Peripheral Increment:	Disable
Memory Increment:	**Enable ***
Peripheral Data Width:	Half Word
Memory Data Width:	Half Word

ADC4: DMA2_Channel2 DMA request Settings:

Mode:	**Circular ***
Peripheral Increment:	Disable
Memory Increment:	**Enable ***

Peripheral Data Width:	Half Word
Memory Data Width:	Half Word

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
DMA1 channel1 global interrupt	true	0	0
USB low priority or CAN_RX0 interrupts	true	0	0
Timer 6 interrupt and DAC underrun interrupts	true	0	0
DMA2 channel1 global interrupt	true	0	0
DMA2 channel2 global interrupt	true	0	0
DMA2 channel5 global interrupt	true	0	0
PVD interrupt through EXTI line16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1 and ADC2 interrupts	unused		
USB high priority or CAN_TX interrupts	unused		
ADC3 global interrupt	unused		
ADC4 interrupt	unused		
USB high priority interrupt remap	unused		
USB low priority interrupt remap	unused		
Floating point unit interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F3
Line	STM32F303
MCU	STM32F303VCTx
Datasheet	023353_Rev13

7.2. Parameter Selection

Temperature	25
Vdd	3.6

8. Software Project

8.1. Project Settings

Name	Value
Project Name	sensglove2
Project Folder	C:\Users\davik\OneDrive\Studia\SterownikiRobotów\SensGlove2
Toolchain / IDE	SW4STM32
Firmware Package Name and Version	STM32Cube FW_F3 V1.8.0

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	Yes
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