1. Description

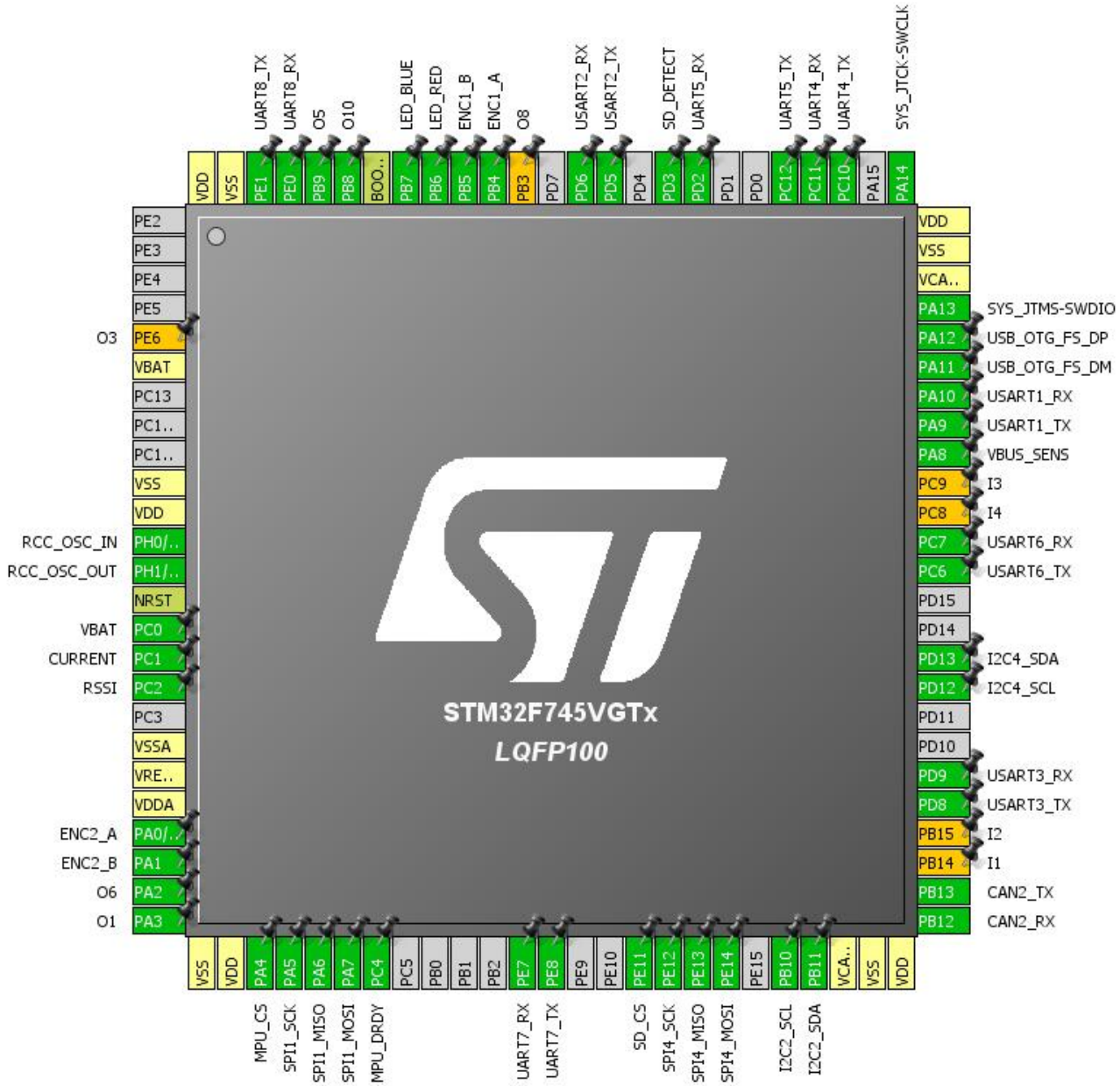
1.1. Project

Project Name	SelfieF7
Board Name	SelfieF7
Generated with:	STM32CubeMX 4.23.0
Date	11/14/2017

1.2. MCU

MCU Series	STM32F7
MCU Line	STM32F7x5
MCU name	STM32F745VGTx
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
5	PE6 *	I/O	TIM9_CH2	O3
6	VBAT	Power		
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	ADC1_IN10	VBAT
16	PC1	I/O	ADC1_IN11	CURRENT
17	PC2	I/O	ADC1_IN12	RSSI
19	VSSA	Power		
20	VREF+	Power		
21	VDDA	Power		
22	PA0/WKUP	I/O	TIM5_CH1	ENC2_A
23	PA1	I/O	TIM5_CH2	ENC2_B
24	PA2	I/O	TIM2_CH3	O6
25	PA3	I/O	TIM2_CH4	O1
26	VSS	Power		
27	VDD	Power		
28	PA4	I/O	SPI1_NSS	MPU_CS
29	PA5	I/O	SPI1_SCK	
30	PA6	I/O	SPI1_MISO	
31	PA7	I/O	SPI1_MOSI	
32	PC4	I/O	GPIO_EXTI4	MPU_DRDY
37	PE7	I/O	UART7_RX	
38	PE8	I/O	UART7_TX	
41	PE11	I/O	SPI4_NSS	SD_CS
42	PE12	I/O	SPI4_SCK	
43	PE13	I/O	SPI4_MISO	
44	PE14	I/O	SPI4_MOSI	
46	PB10	I/O	I2C2_SCL	
47	PB11	I/O	I2C2_SDA	
48	VCAP_1	Power		
49	VSS	Power		
50	VDD	Power		
51	PB12	I/O	CAN2_RX	

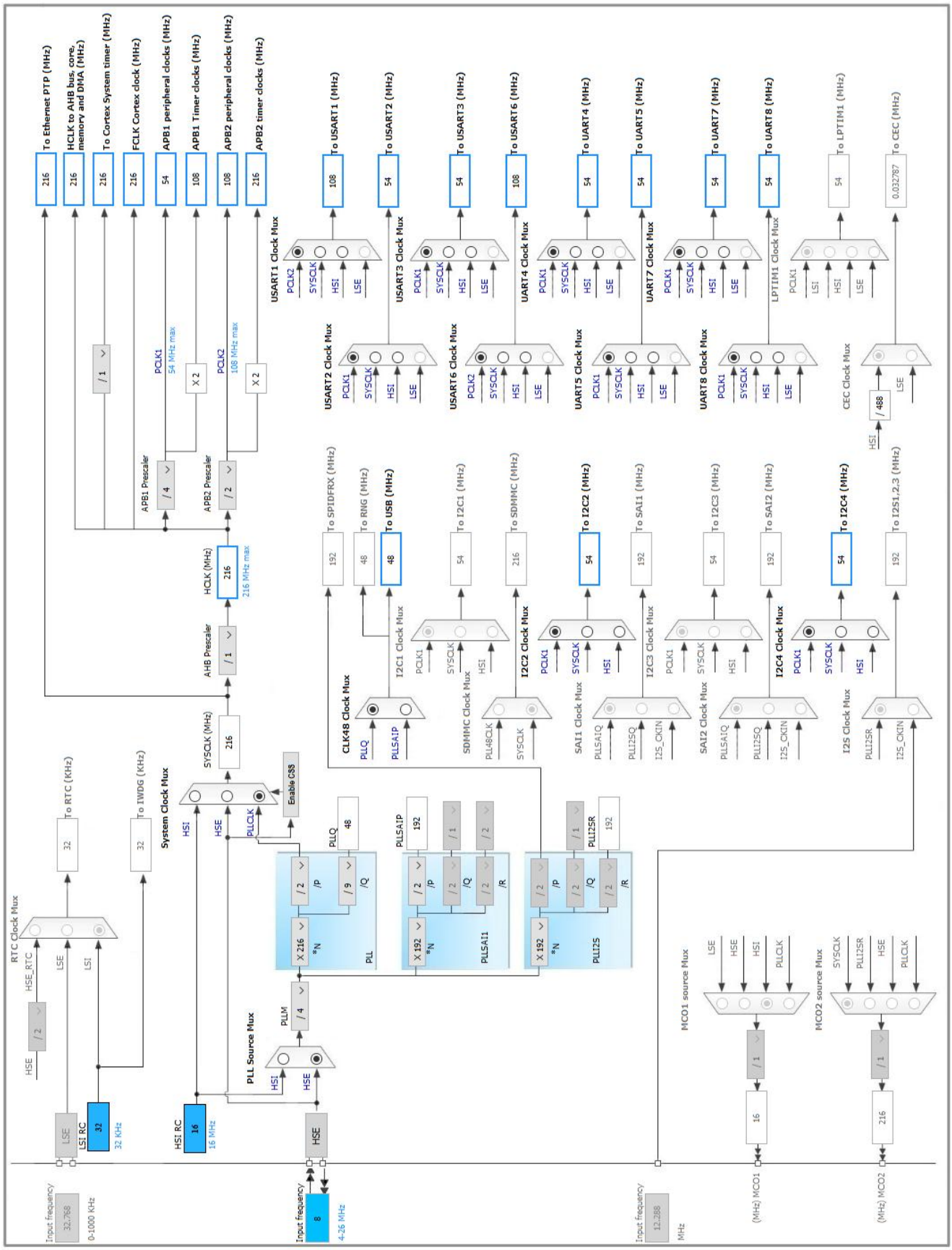
Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
52	PB13	I/O	CAN2_TX	
53	PB14 *	I/O	TIM12_CH1	I1
54	PB15 *	I/O	TIM12_CH2	I2
55	PD8	I/O	USART3_TX	
56	PD9	I/O	USART3_RX	
59	PD12	I/O	I2C4_SCL	
60	PD13	I/O	I2C4_SDA	
63	PC6	I/O	USART6_TX	
64	PC7	I/O	USART6_RX	
65	PC8 *	I/O	TIM8_CH3	I4
66	PC9 *	I/O	TIM8_CH4	I3
67	PA8 **	I/O	GPIO_Input	VBUS_SENS
68	PA9	I/O	USART1_TX	
69	PA10	I/O	USART1_RX	
70	PA11	I/O	USB_OTG_FS_DM	
71	PA12	I/O	USB_OTG_FS_DP	
72	PA13	I/O	SYS_JTMS-SWDIO	
73	VCAP_2	Power		
74	VSS	Power		
75	VDD	Power		
76	PA14	I/O	SYS_JTCK-SWCLK	
78	PC10	I/O	UART4_TX	
79	PC11	I/O	UART4_RX	
80	PC12	I/O	UART5_TX	
83	PD2	I/O	UART5_RX	
84	PD3 **	I/O	GPIO_Input	SD_DETECT
86	PD5	I/O	USART2_TX	
87	PD6	I/O	USART2_RX	
89	PB3 *	I/O	TIM2_CH2	O8
90	PB4	I/O	TIM3_CH1	ENC1_A
91	PB5	I/O	TIM3_CH2	ENC1_B
92	PB6 **	I/O	GPIO_Output	LED_RED
93	PB7 **	I/O	GPIO_Output	LED_BLUE
94	BOOT0	Boot		
95	PB8	I/O	TIM4_CH3	O10
96	PB9 **	I/O	GPIO_Output	O5
97	PE0	I/O	UART8_RX	
98	PE1	I/O	UART8_TX	
99	VSS	Power		

Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
100	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: IN10

mode: IN11

mode: IN12

5.1.1. Parameter Settings:

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

Clock Prescaler	PCLK2 divided by 4
Resolution	12 bits (15 ADC Clock cycles)
Data Alignment	Right alignment
Scan Conversion Mode	**Enabled ***
Continuous Conversion Mode	**Enabled ***
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	**Enabled ***
End Of Conversion Selection	EOC flag at the end of single channel conversion

ADC_Regular_ConversionMode:

Number Of Conversion	**3 ***
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None
Rank	1
Channel	Channel 10
Sampling Time	**15 Cycles ***
Rank	**2 ***
Channel	**Channel 11 ***
Sampling Time	**15 Cycles ***
Rank	**3 ***
Channel	**Channel 12 ***
Sampling Time	**15 Cycles ***

ADC_Injected_ConversionMode:

Number Of Conversions	0

WatchDog:

Enable Analog WatchDog Mode	false

5.2. CAN2

mode: Mode

5.2.1. Parameter Settings:

Bit Timings Parameters:

Prescaler (for Time Quantum)	16
Time Quantum	**296.2962962962963 ***
Time Quanta in Bit Segment 1	**4 Times ***
Time Quanta in Bit Segment 2	**4 Times ***
Time for one Bit	**2666 ***
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

5.3. I2C2

I2C: I2C

5.3.1. Parameter Settings:

Timing configuration:

I2C Speed Mode	**Fast Mode ***
I2C Speed Frequency (KHz)	400
Rise Time (ns)	0
Fall Time (ns)	0
Coefficient of Digital Filter	0
Analog Filter	Enabled
Timing	**0x6000030D ***

Slave Features:

Clock No Stretch Mode	Disabled
General Call Address Detection	Disabled
Primary Address Length selection	7-bit
Dual Address Acknowledged	Disabled
Primary slave address	0

5.4. I2C4

I2C: I2C

5.4.1. Parameter Settings:

Timing configuration:

I2C Speed Mode	Standard Mode
I2C Speed Frequency (KHz)	100
Rise Time (ns)	0
Fall Time (ns)	0
Coefficient of Digital Filter	0
Analog Filter	Enabled
Timing	0x00303D5B

Slave Features:

Clock No Stretch Mode	Disabled
General Call Address Detection	Disabled
Primary Address Length selection	7-bit
Dual Address Acknowledged	Disabled
Primary slave address	0

5.5. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

5.5.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Flash Latency(WS)	7 WS (8 CPU cycle)

RCC Parameters:

HSI Calibration Value	16

TIM Prescaler Selection	Disabled
HSE Startup Timout Value (ms)	100
LSE Startup Timout Value (ms)	5000

Power Parameters:

Power Over Drive	Enabled
Power Regulatror Voltage Scale	Power Regulator Voltage Scale 1

5.6. SPI1

Mode: Full-Duplex Master

Hardware NSS Signal: Hardware NSS Output Signal

5.6.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	**8 Bits ***
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	**4 ***
Baud Rate	**27.0 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSSP Mode	Enabled
NSS Signal Type	Output Hardware

5.7. SPI4

Mode: Full-Duplex Master

Hardware NSS Signal: Hardware NSS Output Signal

5.7.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	**8 Bits ***

First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	**8 ***
Baud Rate	**13.5 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSSP Mode	Enabled
NSS Signal Type	Output Hardware

5.8. SYS

Debug: Serial Wire

Timebase Source: TIM1

5.9. TIM2

Clock Source : Internal Clock

Channel3: PWM Generation CH3

Channel4: PWM Generation CH4

5.9.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**107 ***
Counter Mode	Up
Counter Period (AutoReload Register - 32 bits value)	**19999 ***
Internal Clock Division (CKD)	No Division
auto-reload preload	Disable

Trigger Output (TRGO) Parameters:

Master/Slave Mode	Disable (no sync between this TIM (Master) and its Slaves
Trigger Event Selection TRGO	Reset (UG bit from TIMx_EGR)

PWM Generation Channel 3:

Mode	PWM mode 1
Pulse (32 bits value)	0
Fast Mode	Disable
CH Polarity	High

PWM Generation Channel 4:

Mode	PWM mode 1
Pulse (32 bits value)	0
Fast Mode	Disable
CH Polarity	High

5.10. TIM3

Combined Channels: Encoder Mode

5.10.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**0xffff ***
Internal Clock Division (CKD)	No Division
auto-reload preload	Disable

Trigger Output (TRGO) Parameters:

Master/Slave Mode	Disable (no sync between this TIM (Master) and its Slaves
Trigger Event Selection TRGO	Reset (UG bit from TIMx_EGR)

Encoder:

Encoder Mode	**Encoder Mode TI1 and TI2 ***
____ Parameters for Channel 1 ____	
Polarity	**Both Edges ***
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter	0
____ Parameters for Channel 2 ____	
Polarity	**Both Edges ***
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter	0

5.11. TIM4

Channel3: PWM Generation CH3

5.11.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**134 ***
Internal Clock Division (CKD)	No Division
auto-reload preload	Disable

Trigger Output (TRGO) Parameters:

Master/Slave Mode	Disable (no sync between this TIM (Master) and its Slaves
Trigger Event Selection TRGO	Reset (UG bit from TIMx_EGR)

PWM Generation Channel 3:

Mode	PWM mode 1
Pulse (16 bits value)	0
Fast Mode	Disable
CH Polarity	High

5.12. TIM5

Combined Channels: Encoder Mode

5.12.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 32 bits value)	**0xffffffff ***
Internal Clock Division (CKD)	No Division
auto-reload preload	Disable

Trigger Output (TRGO) Parameters:

Master/Slave Mode	Disable (no sync between this TIM (Master) and its Slaves
Trigger Event Selection TRGO	Reset (UG bit from TIMx_EGR)

Encoder:

Encoder Mode	**Encoder Mode TI1 and TI2 ***
____ Parameters for Channel 1 ____	
Polarity	**Both Edges ***
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter	0

____ Parameters for Channel 2 ____

Polarity	**Both Edges ***
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter	0

5.13. TIM7

mode: Activated

5.13.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**107 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**9999 ***
auto-reload preload	Disable

Trigger Output (TRGO) Parameters:

Trigger Event Selection	Reset (UG bit from TIMx_EGR)

5.14. TIM10

mode: Activated

5.14.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**21599 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**49999 ***
Internal Clock Division (CKD)	No Division
auto-reload preload	Disable

5.15. UART4

Mode: Asynchronous

5.15.1. Parameter Settings:

Basic Parameters:

Baud Rate	**9600 ***
Word Length	**9 Bits (including Parity) ***
Parity	**Even ***
Stop Bits	**2 ***

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples
Single Sample	Disable

Advanced Features:

Auto Baudrate	Disable
TX Pin Active Level Inversion	Disable
RX Pin Active Level Inversion	Disable
Data Inversion	Disable
TX and RX Pins Swapping	Disable
Overrun	Enable
DMA on RX Error	Enable
MSB First	Disable

5.16. UART5

Mode: Asynchronous

5.16.1. Parameter Settings:

Basic Parameters:

Baud Rate	115200
Word Length	7 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples
Single Sample	Disable

Advanced Features:

Auto Baudrate	Disable
TX Pin Active Level Inversion	Disable

RX Pin Active Level Inversion	Disable
Data Inversion	Disable
TX and RX Pins Swapping	Disable
Overrun	Enable
DMA on RX Error	Enable
MSB First	Disable

5.17. UART7

Mode: Asynchronous

5.17.1. Parameter Settings:

Basic Parameters:

Baud Rate	115200
Word Length	7 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples
Single Sample	Disable

Advanced Features:

Auto Baudrate	Disable
TX Pin Active Level Inversion	Disable
RX Pin Active Level Inversion	Disable
Data Inversion	Disable
TX and RX Pins Swapping	Disable
Overrun	Enable
DMA on RX Error	Enable
MSB First	Disable

5.18. UART8

Mode: Asynchronous

5.18.1. Parameter Settings:

Basic Parameters:

Baud Rate	115200
Word Length	7 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples
Single Sample	Disable

Advanced Features:

Auto Baudrate	Disable
TX Pin Active Level Inversion	Disable
RX Pin Active Level Inversion	Disable
Data Inversion	Disable
TX and RX Pins Swapping	Disable
Overrun	Enable
DMA on RX Error	Enable
MSB First	Disable

5.19. USART1

Mode: Asynchronous

5.19.1. Parameter Settings:

Basic Parameters:

Baud Rate	**100000 ***
Word Length	**9 Bits (including Parity) ***
Parity	**Even ***
Stop Bits	**2 ***

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples
Single Sample	Disable

Advanced Features:

Auto Baudrate	Disable
TX Pin Active Level Inversion	**Enable ***
RX Pin Active Level Inversion	**Enable ***
Data Inversion	Disable
TX and RX Pins Swapping	Disable

Overrun	Enable
DMA on RX Error	Enable
MSB First	Disable

5.20. USART2

Mode: Asynchronous

5.20.1. Parameter Settings:

Basic Parameters:

Baud Rate	115200
Word Length	7 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples
Single Sample	Disable

Advanced Features:

Auto Baudrate	Disable
TX Pin Active Level Inversion	Disable
RX Pin Active Level Inversion	Disable
Data Inversion	Disable
TX and RX Pins Swapping	Disable
Overrun	Enable
DMA on RX Error	Enable
MSB First	Disable

5.21. USART3

Mode: Asynchronous

5.21.1. Parameter Settings:

Basic Parameters:

Baud Rate	115200
Word Length	7 Bits (including Parity)
Parity	None

Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples
Single Sample	Disable

Advanced Features:

Auto Baudrate	Disable
TX Pin Active Level Inversion	Disable
RX Pin Active Level Inversion	Disable
Data Inversion	Disable
TX and RX Pins Swapping	Disable
Overrun	Enable
DMA on RX Error	Enable
MSB First	Disable

5.22. USART6

Mode: Asynchronous

5.22.1. Parameter Settings:

Basic Parameters:

Baud Rate	115200
Word Length	7 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples
Single Sample	Disable

Advanced Features:

Auto Baudrate	Disable
TX Pin Active Level Inversion	Disable
RX Pin Active Level Inversion	Disable
Data Inversion	Disable
TX and RX Pins Swapping	Disable
Overrun	Enable
DMA on RX Error	Enable
MSB First	Disable

5.23. USB_OTG_FS

Mode: Device_Only

5.23.1. Parameter Settings:

Speed	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	Disabled
Signal start of frame	Disabled

5.24. FREERTOS

mode: Enabled

5.24.1. 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	Disabled
USE_COUNTING_SEMAPHORES	Disabled
QUEUE_REGISTRY_SIZE	8
USE_APPLICATION_TASK_TAG	Disabled
ENABLE_BACKWARD_COMPATIBILITY	Enabled

USE_PORT_OPTIMISED_TASK_SELECTION	Enabled
USE_TICKLESS_IDLE	Disabled
USE_TASK_NOTIFICATIONS	Enabled

Memory management settings:

Memory Allocation	Dynamic
TOTAL_HEAP_SIZE	15360
Memory Management scheme	heap_4

Hook function related definitions:

USE_IDLE_HOOK	Disabled
USE_TICK_HOOK	Disabled
USE_MALLOC_FAILED_HOOK	Disabled
USE_DAEMON_TASK_STARTUP_HOOK	Disabled
CHECK_FOR_STACK_OVERFLOW	Disabled

Run time and task stats gathering related definitions:

GENERATE_RUN_TIME_STATS	Disabled
USE_TRACE_FACILITY	Disabled
USE_STATS_FORMATTING_FUNCTIONS	Disabled

Co-routine related definitions:

USE_CO_ROUTINES	Disabled
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

5.24.2. Include parameters:

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
xTaskAbortDelay	Disabled
xTaskGetHandle	Disabled

5.25. USB_DEVICE

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

5.25.1. 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
USBD_LPM_ENABLED (Link Power Management)	1: Link Power Management supported

Class Parameters:

USB CDC Rx Buffer Size	2048
USB CDC Tx Buffer Size	2048

5.25.2. Device Descriptor:

Device Descriptor:

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

Device Descriptor FS:

PID (Product IDentifier)	22336
PRODUCT_STRING (Product Identifier)	**Selfie F7 ***
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	PC0	ADC1_IN10	Analog mode	No pull-up and no pull-down	n/a	VBAT
	PC1	ADC1_IN11	Analog mode	No pull-up and no pull-down	n/a	CURRENT
	PC2	ADC1_IN12	Analog mode	No pull-up and no pull-down	n/a	RSSI
CAN2	PB12	CAN2_RX	Alternate Function Push Pull	No pull-up and no pull-down	**Very High** *	
	PB13	CAN2_TX	Alternate Function Push Pull	No pull-up and no pull-down	**Very High** *	
I2C2	PB10	I2C2_SCL	Alternate Function Open Drain	Pull-up	**Very High** *	
	PB11	I2C2_SDA	Alternate Function Open Drain	Pull-up	**Very High** *	
I2C4	PD12	I2C4_SCL	Alternate Function Open Drain	Pull-up	**Very High** *	
	PD13	I2C4_SDA	Alternate Function Open Drain	Pull-up	**Very High** *	
RCC	PH0/OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PH1/OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
SPI1	PA4	SPI1_NSS	Alternate Function Push Pull	No pull-up and no pull-down	**Very High** *	MPU_CS
	PA5	SPI1_SCK	Alternate Function Push Pull	No pull-up and no pull-down	**Very High** *	
	PA6	SPI1_MISO	Alternate Function Push Pull	No pull-up and no pull-down	**Very High** *	
	PA7	SPI1_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	**Very High** *	
SPI4	PE11	SPI4_NSS	Alternate Function Push Pull	No pull-up and no pull-down	**Very High** *	SD_CS
	PE12	SPI4_SCK	Alternate Function Push Pull	No pull-up and no pull-down	**Very High** *	
	PE13	SPI4_MISO	Alternate Function Push Pull	No pull-up and no pull-down	**Very High**	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
					*	
	PE14	SPI4_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	**Very High** *	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
TIM2	PA2	TIM2_CH3	Alternate Function Push Pull	No pull-up and no pull-down	Low	O6
	PA3	TIM2_CH4	Alternate Function Push Pull	No pull-up and no pull-down	Low	O1
TIM3	PB4	TIM3_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	ENC1_A
	PB5	TIM3_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	ENC1_B
TIM4	PB8	TIM4_CH3	Alternate Function Push Pull	No pull-up and no pull-down	**Very High** *	O10
TIM5	PA0/WKUP	TIM5_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	ENC2_A
	PA1	TIM5_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	ENC2_B
UART4	PC10	UART4_TX	Alternate Function Push Pull	Pull-up	**Very High** *	
	PC11	UART4_RX	Alternate Function Push Pull	Pull-up	**Very High** *	
UART5	PC12	UART5_TX	Alternate Function Push Pull	Pull-up	**Very High** *	
	PD2	UART5_RX	Alternate Function Push Pull	Pull-up	**Very High** *	
UART7	PE7	UART7_RX	Alternate Function Push Pull	Pull-up	**Very High** *	
	PE8	UART7_TX	Alternate Function Push Pull	Pull-up	**Very High** *	
UART8	PE0	UART8_RX	Alternate Function Push Pull	Pull-up	**Very High** *	
	PE1	UART8_TX	Alternate Function Push Pull	Pull-up	**Very High** *	
USART1	PA9	USART1_TX	Alternate Function Push Pull	Pull-up	**Very High** *	
	PA10	USART1_RX	Alternate Function Push Pull	Pull-up	**Very High** *	
USART2	PD5	USART2_TX	Alternate Function Push Pull	Pull-up	**Very High** *	
	PD6	USART2_RX	Alternate Function Push Pull	Pull-up	**Very High**	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
					*	
USART3	PD8	USART3_TX	Alternate Function Push Pull	Pull-up	**Very High** *	
	PD9	USART3_RX	Alternate Function Push Pull	Pull-up	**Very High** *	
USART6	PC6	USART6_TX	Alternate Function Push Pull	Pull-up	**Very High** *	
	PC7	USART6_RX	Alternate Function Push Pull	Pull-up	**Very High** *	
USB_OTG_FS	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** *	
Single Mapped Signals	PE6	TIM9_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	O3
	PB14	TIM12_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	I1
	PB15	TIM12_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	I2
	PC8	TIM8_CH3	Alternate Function Push Pull	No pull-up and no pull-down	Low	I4
	PC9	TIM8_CH4	Alternate Function Push Pull	No pull-up and no pull-down	Low	I3
	PB3	TIM2_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	O8
GPIO	PC4	GPIO_EXTI4	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	MPU_DRDY
	PA8	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	VBUS_SENS
	PD3	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SD_DETECT
	PB6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED_RED
	PB7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED_BLUE
	PB9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	O5

6.2. DMA configuration

DMA request	Stream	Direction	Priority
UART4_RX	DMA1_Stream2	Peripheral To Memory	Low
UART4_TX	DMA1_Stream4	Memory To Peripheral	Low
USART1_RX	DMA2_Stream2	Peripheral To Memory	Low
USART1_TX	DMA2_Stream7	Memory To Peripheral	Low
TIM4_CH3	DMA1_Stream7	Memory To Peripheral	Low
SPI4_TX	DMA2_Stream1	Memory To Peripheral	Low
ADC1	DMA2_Stream0	Peripheral To Memory	**Medium ***

UART4_RX: DMA1_Stream2 DMA request Settings:

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

UART4_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

USART1_RX: DMA2_Stream2 DMA request Settings:

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

USART1_TX: DMA2_Stream7 DMA request Settings:

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

TIM4_CH3: DMA1_Stream7 DMA request Settings:

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

SPI4_TX: DMA2_Stream1 DMA request Settings:

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

ADC1: DMA2_Stream0 DMA request Settings:

Mode:	Normal
Use fifo:	Disable
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	15	0
System tick timer	true	15	0
DMA1 stream2 global interrupt	true	5	0
DMA1 stream4 global interrupt	true	5	0
TIM1 update interrupt and TIM10 global interrupt	true	0	0
I2C2 event interrupt	true	5	0
SPI1 global interrupt	true	5	0
USART1 global interrupt	true	5	0
DMA1 stream7 global interrupt	true	5	0
UART4 global interrupt	true	0	0
TIM7 global interrupt	true	5	0
DMA2 stream0 global interrupt	true	5	0
DMA2 stream1 global interrupt	true	5	0
DMA2 stream2 global interrupt	true	5	0
USB On The Go FS global interrupt	true	5	0
DMA2 stream7 global interrupt	true	5	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
EXTI line4 interrupt	unused		
ADC1, ADC2 and ADC3 global interrupts	unused		
TIM2 global interrupt	unused		
TIM3 global interrupt	unused		
TIM4 global interrupt	unused		
I2C2 error interrupt	unused		
USART2 global interrupt	unused		
USART3 global interrupt	unused		
TIM5 global interrupt	unused		
UART5 global interrupt	unused		
CAN2 TX interrupts	unused		
CAN2 RX0 interrupts	unused		

Interrupt Table	Enable	Preenmption Priority	SubPriority
CAN2 RX1 interrupt	unused		
CAN2 SCE interrupt	unused		
USART6 global interrupt	unused		
FPU global interrupt	unused		
UART7 global interrupt	unused		
UART8 global interrupt	unused		
SPI4 global interrupt	unused		
I2C4 event interrupt	unused		
I2C4 error interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F7
Line	STM32F7x5
MCU	STM32F745VGTx
Datasheet	027590_Rev4

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	SelfieF7
Project Folder	C:\Users\mice\workspace\SelfieF7
Toolchain / IDE	SW4STM32
Firmware Package Name and Version	STM32Cube FW_F7 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	Yes
Delete previously generated files when not re-generated	Yes
Set all free pins as analog (to optimize the power consumption)	No