1. Description

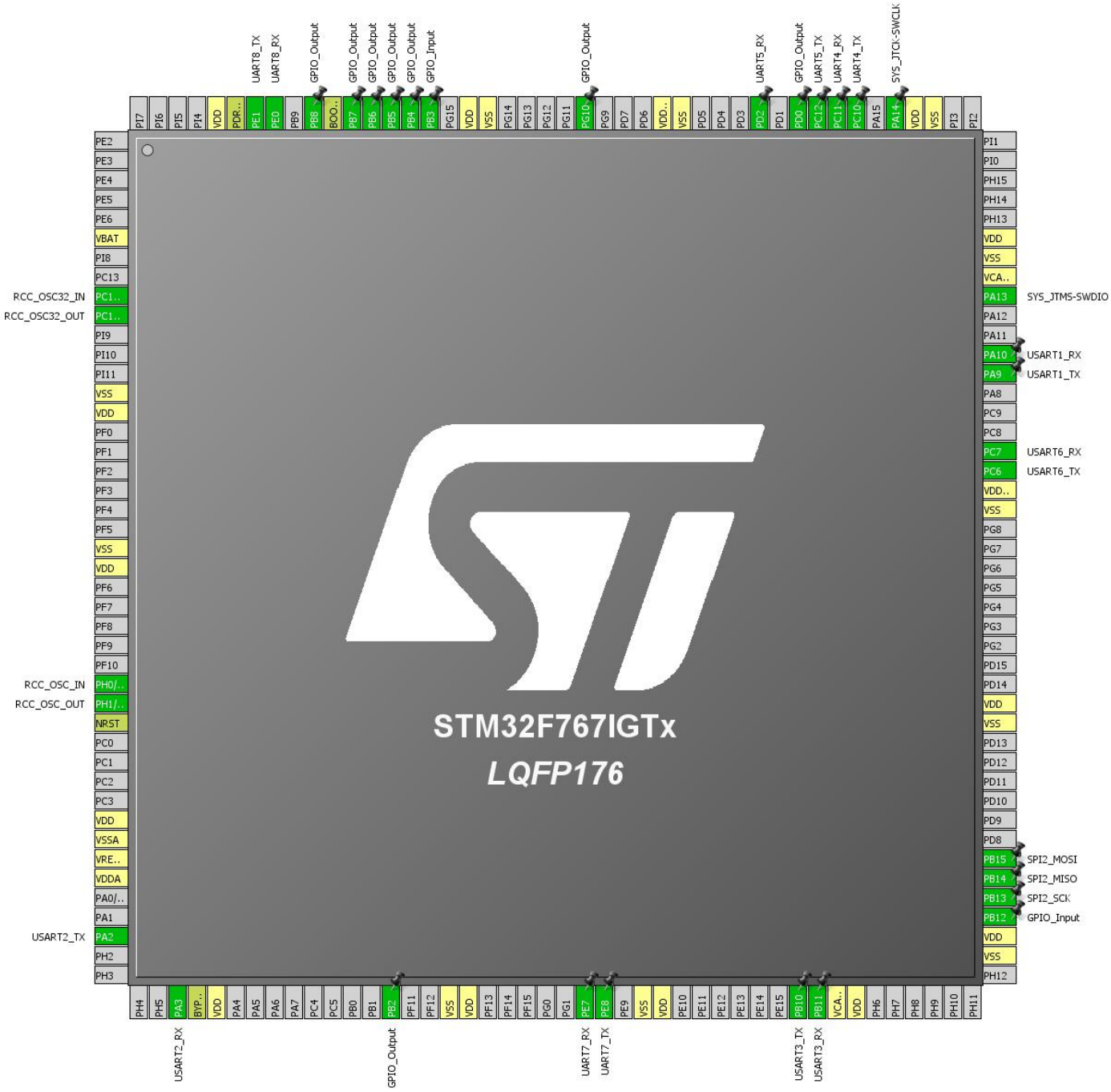
1.1. Project

Project Name	flowWebKwil1
Board Name	flowWebKwil1.0
Generated with:	STM32CubeMX 4.23.0
Date	05/15/2018

1.2. MCU

MCU Series	STM32F7
MCU Line	STM32F7x7
MCU name	STM32F767IGTx
MCU Package	LQFP176
MCU Pin number	176

2. Pinout Configuration



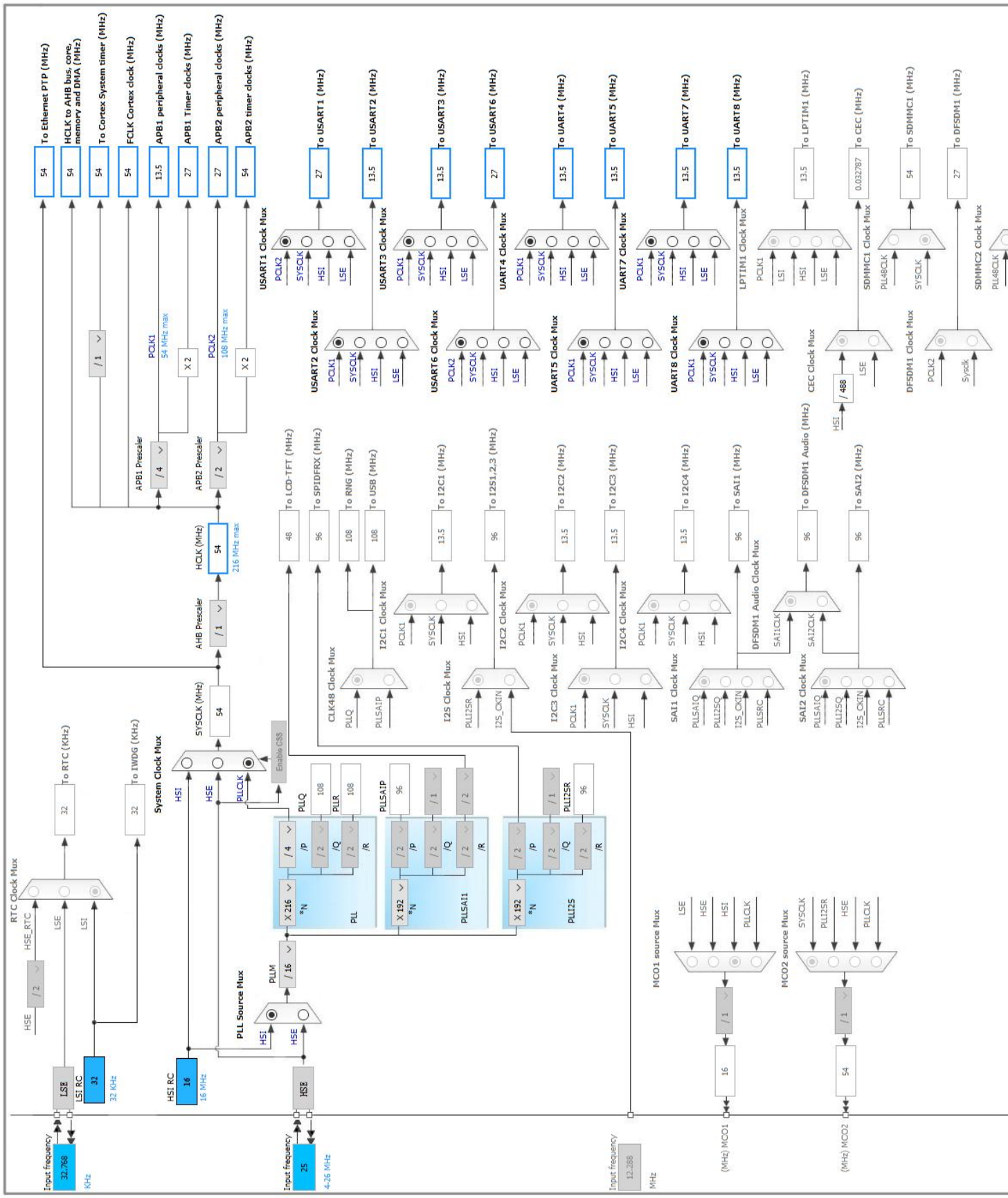
3. Pins Configuration

Pin Number LQFP176	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
6	VBAT	Power		
9	PC14/OSC32_IN	I/O	RCC_OSC32_IN	
10	PC15/OSC32_OUT	I/O	RCC_OSC32_OUT	
14	VSS	Power		
15	VDD	Power		
22	VSS	Power		
23	VDD	Power		
29	PH0/OSC_IN	I/O	RCC_OSC_IN	
30	PH1/OSC_OUT	I/O	RCC_OSC_OUT	
31	NRST	Reset		
36	VDD	Power		
37	VSSA	Power		
38	VREF+	Power		
39	VDDA	Power		
42	PA2	I/O	USART2_TX	
47	PA3	I/O	USART2_RX	
48	BYPASS_REG	Reset		
49	VDD	Power		
58	PB2 *	I/O	GPIO_Output	
61	VSS	Power		
62	VDD	Power		
68	PE7	I/O	UART7_RX	
69	PE8	I/O	UART7_TX	
71	VSS	Power		
72	VDD	Power		
79	PB10	I/O	USART3_TX	
80	PB11	I/O	USART3_RX	
81	VCAP_1	Power		
82	VDD	Power		
90	VSS	Power		
91	VDD	Power		
92	PB12 *	I/O	GPIO_Input	
93	PB13	I/O	SPI2_SCK	
94	PB14	I/O	SPI2_MISO	
95	PB15	I/O	SPI2_MOSI	
102	VSS	Power		

Pin Number LQFP176	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
103	VDD	Power		
113	VSS	Power		
114	VDDUSB	Power		
115	PC6	I/O	USART6_TX	
116	PC7	I/O	USART6_RX	
120	PA9	I/O	USART1_TX	
121	PA10	I/O	USART1_RX	
124	PA13	I/O	SYS_JTMS-SWDIO	
125	VCAP_2	Power		
126	VSS	Power		
127	VDD	Power		
135	VSS	Power		
136	VDD	Power		
137	PA14	I/O	SYS_JTCK-SWCLK	
139	PC10	I/O	UART4_TX	
140	PC11	I/O	UART4_RX	
141	PC12	I/O	UART5_TX	
142	PD0 *	I/O	GPIO_Output	
144	PD2	I/O	UART5_RX	
148	VSS	Power		
149	VDDSDMMC	Power		
153	PG10 *	I/O	GPIO_Output	
158	VSS	Power		
159	VDD	Power		
161	PB3 *	I/O	GPIO_Input	
162	PB4 *	I/O	GPIO_Output	
163	PB5 *	I/O	GPIO_Output	
164	PB6 *	I/O	GPIO_Output	
165	PB7 *	I/O	GPIO_Output	
166	BOOT0	Boot		
167	PB8 *	I/O	GPIO_Output	
169	PE0	I/O	UART8_RX	
170	PE1	I/O	UART8_TX	
171	PDR_ON	Reset		
172	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
Flash Latency(WS)	1 WS (2 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	Disabled
Power Regulatror Voltage Scale	Power Regulator Voltage Scale 3

5.2. SPI2

Mode: Full-Duplex Master

5.2.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	4 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	**6.75 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled

NSSP Mode	Enabled
NSS Signal Type	Software

5.3. SYS

Debug: Serial Wire

Timebase Source: SysTick

5.4. UART4

Mode: Asynchronous

5.4.1. Parameter Settings:

Basic Parameters:

Baud Rate	115200
Word Length	**8 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

5.5. UART5

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
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

5.6. UART7

Mode: Asynchronous

5.6.1. 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
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

5.7. UART8

Mode: Asynchronous

5.7.1. 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

5.8. USART1

Mode: Asynchronous

5.8.1. 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
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

5.9. USART2

Mode: Asynchronous

5.9.1. 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
Single Sample	**Enable ***

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	**Disable ***

DMA on RX Error	**Disable ***
MSB First	Disable

5.10. USART3

Mode: Asynchronous

5.10.1. 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
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

5.11. USART6

Mode: Asynchronous

5.11.1. 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

*** 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	
SPI2	PB13	SPI2_SCK	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PB14	SPI2_MISO	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PB15	SPI2_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	
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**	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
					*	
USART1	PA9	USART1_TX	Alternate Function Push Pull	Pull-up	**Very High** *	
	PA10	USART1_RX	Alternate Function Push Pull	Pull-up	**Very High** *	
USART2	PA2	USART2_TX	Alternate Function Push Pull	Pull-up	**Very High** *	
	PA3	USART2_RX	Alternate Function Push Pull	Pull-up	**Very High** *	
USART3	PB10	USART3_TX	Alternate Function Push Pull	Pull-up	**Very High** *	
	PB11	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** *	
GPIO	PB2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB12	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PD0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PG10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB3	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PB4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB8	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
USART1 global interrupt	true	0	0
USART2 global interrupt	true	0	0
USART3 global interrupt	true	1	0
UART4 global interrupt	true	2	0
UART5 global interrupt	true	3	0
USART6 global interrupt	true	0	0
UART7 global interrupt	true	4	0
UART8 global interrupt	true	0	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
SPI2 global interrupt	unused		
FPU global interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F7
Line	STM32F7x7
MCU	STM32F767IGTx
Datasheet	029041_Rev4

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	flowWebKwil1.0
Project Folder	G:\projectFile\graduationProject\softProject\softwore\flowWebKwil1.0
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_F7 V1.8.0

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