1. Description

1.1. Project

Project Name	F767_Hermit_main
Board Name	F767_Hermit_main
Generated with:	STM32CubeMX 4.23.0
Date	03/23/2018

1.2. MCU

MCU Series	STM32F7
MCU Line	STM32F7x7
MCU name	STM32F767ZITx
MCU Package	LQFP144
MCU Pin number	144

2. Pinout Configuration
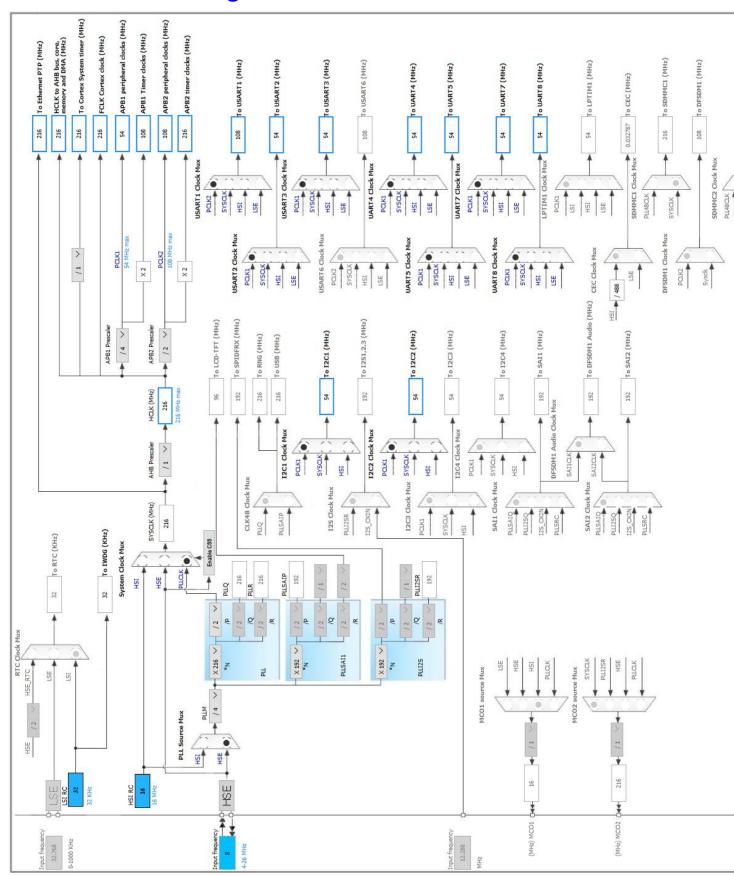
3. Pins Configuration

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	PE2 *	I/O	GPIO_Input	
2	PE3 *	I/O	GPIO_Input	
3	PE4 *	I/O	GPIO_Input	
4	PE5	I/O	TIM9_CH1	
5	PE6	I/O	TIM9_CH2	
6	VBAT	Power		
7	PC13 *	I/O	GPIO_Input	
8	PC14/OSC32_IN *	I/O	GPIO_Input	
9	PC15/OSC32_OUT *	I/O	GPIO_Input	
10	PF0	I/O	I2C2_SDA	
11	PF1	I/O	I2C2_SCL	
12	PF2 *	I/O	GPIO_Input	
13	PF3 *	I/O	GPIO_Input	
14	PF4 *	I/O	GPIO_Input	
15	PF5 *	I/O	GPIO_Input	
16	VSS	Power		
17	VDD	Power		
18	PF6	I/O	TIM10_CH1	
19	PF7	I/O	TIM11_CH1	
20	PF8	I/O	TIM13_CH1	
21	PF9	I/O	TIM14_CH1	
22	PF10 *	I/O	GPIO_Input	
23	PH0/OSC_IN	I/O	RCC_OSC_IN	
24	PH1/OSC_OUT	I/O	RCC_OSC_OUT	
25	NRST	Reset		
26	PC0 *	I/O	GPIO_Input	
30	VDD	Power		
31	VSSA	Power		
32	VREF+	Power		
33	VDDA	Power		
34	PA0/WKUP	I/O	TIM5_CH1	
35	PA1	I/O	TIM5_CH2	
38	VSS	Power		
39	VDD	Power		
40	PA4 *	I/O	GPIO_Input	
41	PA5	I/O	TIM2_CH1	

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
42	PA6	I/O	TIM3_CH1	
43	PA7	I/O	TIM3_CH2	
44	PC4 *	I/O	GPIO_Input	
46	PB0 *	I/O	GPIO_Output	USER_LED
51	VSS	Power		
52	VDD	Power		
58	PE7	I/O	UART7_RX	
59	PE8	I/O	UART7_TX	
60	PE9	I/O	TIM1_CH1	
61	VSS	Power		
62	VDD	Power		
64	PE11	I/O	TIM1_CH2	
69	PB10	I/O	TIM2_CH3	
70	PB11	I/O	TIM2_CH4	
71	VCAP_1	Power		
72	VDD	Power		
73	PB12	I/O	UART5_RX	
74	PB13	I/O	UART5_TX	
75	PB14	I/O	TIM12_CH1	
76	PB15	I/O	TIM12_CH2	
77	PD8	I/O	USART3_TX	
78	PD9	I/O	USART3_RX	
81	PD12	I/O	TIM4_CH1	
82	PD13	I/O	TIM4_CH2	
83	VSS	Power		
84	VDD	Power		
87	PG2 *	I/O	GPIO_Output	
94	VSS	Power		
95	VDDUSB	Power		
96	PC6	I/O	TIM8_CH1	
97	PC7	I/O	TIM8_CH2	
98	PC8	I/O	TIM8_CH3	
99	PC9	I/O	TIM8_CH4	
100	PA8 *	I/O	GPIO_Output	
101	PA9	I/O	USART1_TX	
102	PA10	I/O	USART1_RX	
103	PA11	I/O	UART4_RX	
104	PA12	I/O	UART4_TX	
105	PA13	I/O	SYS_JTMS-SWDIO	

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
106	VCAP_2	Power		
107	VSS	Power		
108	VDD	Power		
109	PA14	I/O	SYS_JTCK-SWCLK	
110	PA15 *	I/O	GPIO_Output	
111	PC10 *	I/O	GPIO_Output	
112	PC11 *	I/O	GPIO_Output	
113	PC12 *	I/O	GPIO_Output	
114	PD0 *	I/O	GPIO_Output	
115	PD1 *	I/O	GPIO_Output	
116	PD2 *	I/O	GPIO_Input	
117	PD3 *	I/O	GPIO_Input	
118	PD4 *	I/O	GPIO_Input	
119	PD5	I/O	USART2_TX	
120	VSS	Power		
121	VDDSDMMC	Power		
122	PD6	I/O	USART2_RX	
123	PD7 *	I/O	GPIO_Input	
124	PG9 *	I/O	GPIO_Input	
125	PG10 *	I/O	GPIO_Input	
126	PG11 *	I/O	GPIO_Input	
127	PG12 *	I/O	GPIO_Input	
128	PG13 *	I/O	GPIO_Input	
129	PG14 *	I/O	GPIO_Input	
130	VSS	Power		
131	VDD	Power		
132	PG15 *	I/O	GPIO_Output	
133	PB3	I/O	TIM2_CH2	
136	PB6	I/O	I2C1_SCL	
137	PB7	I/O	I2C1_SDA	
138	BOOT0	Boot		
140	PB9 *	I/O	GPIO_Output	
141	PE0	I/O	UART8_RX	
142	PE1	I/O	UART8_TX	
143	PDR_ON	Reset		
144	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration

5. IPs and Middleware Configuration

5.1. I2C1

I2C: I2C

5.1.1. Parameter Settings:

Timing configuration:

I2C Speed Mode	Standard Mode
I2C Speed Frequency (KHz)	100
Rise Time (ns)	**300 ***
Fall Time (ns)	0
Coefficient of Digital Filter	0
Analog Filter	Enabled
Timing	**0x10E06996 ***

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

5.2. I2C2

I2C: I2C

5.2.1. Parameter Settings:

Timing configuration:

I2C Speed Mode	Standard Mode
I2C Speed Frequency (KHz)	100
Rise Time (ns)	**300 ***
Fall Time (ns)	0
Coefficient of Digital Filter	0
Analog Filter	Enabled
Timing	**0x10E06996 ***

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

5.3. IWDG

mode: Activated

5.3.1. Parameter Settings:

Watchdog Clocking:

IWDG counter clock prescaler	**32 ***
IWDG window value	4095
IWDG down-counter reload value	4095

5.4. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

5.4.1. 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 |

5.5. SYS

Debug: Serial Wire

Timebase Source: SysTick

5.6. TIM1

Combined Channels: Encoder Mode

5.6.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**1300 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**60000 ***
Internal Clock Division (CKD)	No Division
Repetition Counter (RCR - 16 bits value)	0
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)
Trigger Event Selection TRGO2	Reset (UG bit from TIMx_EGR)

Encoder:

Encoder Mode	Encoder Mode TI1
____ Parameters for Channel 1 ____	
Polarity	**Falling Edge ***
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter	**2 ***
____ Parameters for Channel 2 ____	
Polarity	**Falling Edge ***
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter	**2 ***

5.7. TIM2

Channel1: PWM Generation CH1

Channel2: PWM Generation CH2

Channel3: PWM Generation CH3

Channel4: PWM Generation CH4

5.7.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**5 ***
Counter Mode	Up
Counter Period (AutoReload Register - 32 bits value)	**999 ***
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 1:

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

PWM Generation Channel 2:

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

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

5.8. TIM3

Combined Channels: Encoder Mode

5.8.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**1300 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**60000 ***
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

_____ Parameters for Channel 1 _____

Polarity	**Falling Edge ***
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter	**2 ***

_____ Parameters for Channel 2 _____

Polarity	**Falling Edge ***
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter	**2 ***

5.9. TIM4

Combined Channels: Encoder Mode

5.9.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**1300 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**60000 ***
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
_____ Parameters for Channel 1 _____	
Polarity	Rising Edge
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter	0
_____ Parameters for Channel 2 _____	
Polarity	Rising Edge
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter	0

5.10. TIM5

Combined Channels: Encoder Mode

5.10.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**1500 ***
Counter Mode	Up
Counter Period (AutoReload Register - 32 bits value)	**60000 ***
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
_____ Parameters for Channel 1 _____	
Polarity	Rising Edge
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter	0
_____ Parameters for Channel 2 _____	
Polarity	Rising Edge
IC Selection	Direct
Prescaler Division Ratio	No division

Input Filter	0

5.11. TIM6

mode: Activated

5.11.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**432 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**50000-1 ***
auto-reload preload	Disable

Trigger Output (TRGO) Parameters:

Trigger Event Selection	Reset (UG bit from TIMx_EGR)

5.12. TIM8

Channel1: PWM Generation CH1
Channel2: PWM Generation CH2
Channel3: PWM Generation CH3
Channel4: PWM Generation CH4

5.12.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**10 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**999 ***
Internal Clock Division (CKD)	No Division
Repetition Counter (RCR - 16 bits value)	0
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)
Trigger Event Selection TRGO2	Reset (UG bit from TIMx_EGR)

Break And Dead Time management - BRK Configuration:

BRK State	Disable
BRK Polarity	High
BRK Filter (4 bits value)	0
BRK Sources Configuration	
- Digital Input	Disable
- DFSDM	Disable

Break And Dead Time management - BRK2 Configuration:

BRK2 State	Disable
BRK2 Polarity	High
BRK2 Filter (4 bits value)	0
BRK2 Sources Configuration	
- Digital Input	Disable
- DFSDM	Disable

Break And Dead Time management - Output Configuration:

Automatic Output State	Disable
Off State Selection for Run Mode (OSSR)	Disable
Off State Selection for Idle Mode (OSSI)	Disable
Lock Configuration	Off

PWM Generation Channel 1:

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

PWM Generation Channel 2:

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

PWM Generation Channel 3:

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

PWM Generation Channel 4:

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

5.13. TIM9

Channel1: PWM Generation CH1
Channel2: PWM Generation CH2

5.13.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**432 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**9999 ***
Internal Clock Division (CKD)	No Division
auto-reload preload	Disable

PWM Generation Channel 1:

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

PWM Generation Channel 2:

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

5.14. TIM10

mode: Activated
Channel1: PWM Generation CH1

5.14.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**432 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**9999 ***
Internal Clock Division (CKD)	No Division
auto-reload preload	Disable

PWM Generation Channel 1:

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

5.15. TIM11

mode: Activated
Channel1: PWM Generation CH1

5.15.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**432 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**9999 ***
Internal Clock Division (CKD)	No Division
auto-reload preload	Disable

PWM Generation Channel 1:

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

5.16. TIM12

Channel1: PWM Generation CH1
Channel2: PWM Generation CH2

5.16.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**216 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**9999 ***
Internal Clock Division (CKD)	No Division
auto-reload preload	Disable

PWM Generation Channel 1:

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

PWM Generation Channel 2:

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

5.17. TIM13

mode: Activated

Channel1: PWM Generation CH1

5.17.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**216 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**9999 ***
Internal Clock Division (CKD)	No Division
auto-reload preload	Disable

PWM Generation Channel 1:

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

5.18. TIM14

mode: Activated

Channel1: PWM Generation CH1

5.18.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**216** *
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**9999** *
Internal Clock Division (CKD)	No Division
auto-reload preload	Disable

PWM Generation Channel 1:

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

5.19. UART4

Mode: Asynchronous

5.19.1. Parameter Settings:

Basic Parameters:

Baud Rate	115200
Word Length	**9 Bits (including Parity)** *
Parity	**Even** *
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

5.20. UART5

Mode: Asynchronous

5.20.1. Parameter Settings:

Basic Parameters:

Baud Rate	115200
Word Length	**9 Bits (including Parity) ***
Parity	**Even ***
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. UART7

Mode: Asynchronous

5.21.1. 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

5.22. UART8

Mode: Asynchronous

5.22.1. 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

5.23. USART1

Mode: Asynchronous

5.23.1. 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

5.24. USART2

Mode: Asynchronous

5.24.1. 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

5.25. USART3

Mode: Asynchronous

5.25.1. 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

* User modified value

6. System Configuration

6.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
I2C1	PB6	I2C1_SCL	Alternate Function Open Drain	Pull-up	**Very High** *	
	PB7	I2C1_SDA	Alternate Function Open Drain	Pull-up	**Very High** *	
I2C2	PF0	I2C2_SDA	Alternate Function Open Drain	Pull-up	**Very High** *	
	PF1	I2C2_SCL	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	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
TIM1	PE9	TIM1_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PE11	TIM1_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	
TIM2	PA5	TIM2_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PB10	TIM2_CH3	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PB11	TIM2_CH4	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PB3	TIM2_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	
TIM3	PA6	TIM3_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PA7	TIM3_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	
TIM4	PD12	TIM4_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PD13	TIM4_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	
TIM5	PA0/WKUP	TIM5_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PA1	TIM5_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	
TIM8	PC6	TIM8_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PC7	TIM8_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PC8	TIM8_CH3	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PC9	TIM8_CH4	Alternate Function Push Pull	No pull-up and no pull-down	Low	
TIM9	PE5	TIM9_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PE6	TIM9_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
TIM10	PF6	TIM10_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	
TIM11	PF7	TIM11_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	
TIM12	PB14	TIM12_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PB15	TIM12_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	
TIM13	PF8	TIM13_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	
TIM14	PF9	TIM14_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	
UART4	PA11	UART4_RX	Alternate Function Push Pull	Pull-up	**Very High** *	
	PA12	UART4_TX	Alternate Function Push Pull	Pull-up	**Very High** *	
UART5	PB12	UART5_RX	Alternate Function Push Pull	Pull-up	**Very High** *	
	PB13	UART5_TX	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** *	
USART3	PD8	USART3_TX	Alternate Function Push Pull	Pull-up	**Very High** *	
	PD9	USART3_RX	Alternate Function Push Pull	Pull-up	**Very High** *	
GPIO	PE2	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PE3	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PE4	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PC13	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PC14/OSC32_IN	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PC15/OSC32_OUT	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PF2	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PF3	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PF4	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PF5	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PF10	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PC0	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PA4	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PC4	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PB0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	USER_LED
	PG2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PA8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PA15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PC10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PC11	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PC12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PD0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PD1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PD2	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PD3	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PD4	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PD7	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PG9	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PG10	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PG11	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PG12	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PG13	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PG14	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PG15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	

6.2. DMA configuration

DMA request	Stream	Direction	Priority
USART1_RX	DMA2_Stream2	Peripheral To Memory	**Medium ***

USART1_RX: DMA2_Stream2 DMA request Settings:

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

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	2	0
TIM6 global interrupt, DAC1 and DAC2 underrun error interrupts	true	3	0
DMA2 stream2 global interrupt	true	1	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
TIM1 break interrupt and TIM9 global interrupt	unused		
TIM1 update interrupt and TIM10 global interrupt	unused		
TIM1 trigger and commutation interrupts and TIM11 global interrupt	unused		
TIM1 capture compare interrupt	unused		
TIM2 global interrupt	unused		
TIM3 global interrupt	unused		
TIM4 global interrupt	unused		
I2C1 event interrupt	unused		
I2C1 error interrupt	unused		
I2C2 event interrupt	unused		
I2C2 error interrupt	unused		
USART2 global interrupt	unused		
USART3 global interrupt	unused		
TIM8 break interrupt and TIM12 global interrupt	unused		
TIM8 update interrupt and TIM13 global interrupt	unused		
TIM8 trigger and commutation interrupts and TIM14 global interrupt	unused		
TIM8 capture compare interrupt	unused		
TIM5 global interrupt	unused		
UART4 global interrupt	unused		
UART5 global interrupt	unused		

Interrupt Table	Enable	Preenmption Priority	SubPriority
FPU global interrupt	unused		
UART7 global interrupt	unused		
UART8 global interrupt	unused		

* User modified value

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F7
Line	STM32F7x7
MCU	STM32F767ZITx
Datasheet	029041_Rev4

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	F767_Hermit_main
Project Folder	C:\Users\ryouma\OneDrive\\18\\F767_Hermit_main
Toolchain / IDE	TrueSTUDIO
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	No
Delete previously generated files when not re-generated	Yes
Set all free pins as analog (to optimize the power consumption)	No