1. Description

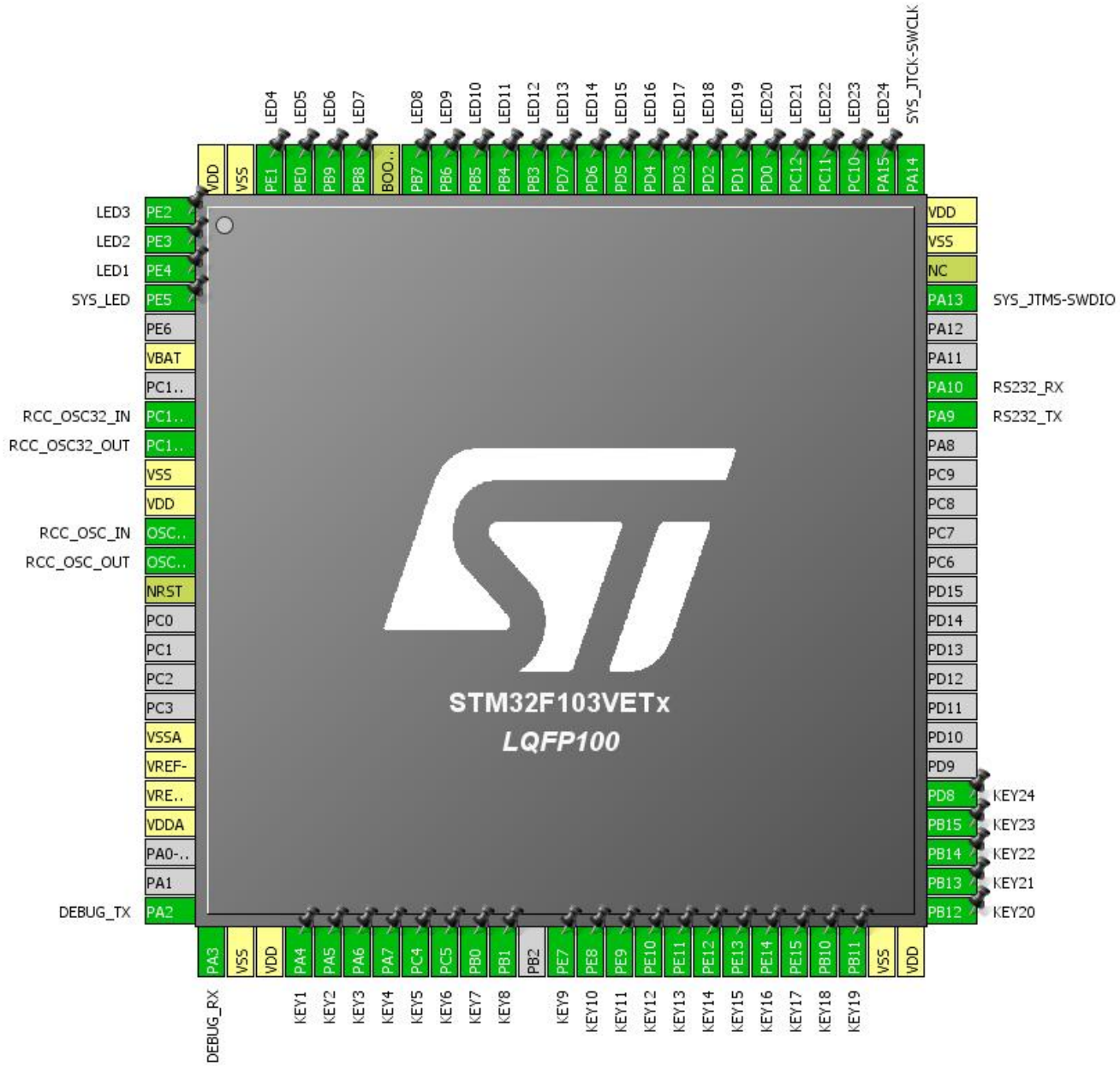
1.1. Project

Project Name	led_contorl
Board Name	led_contorl
Generated with:	STM32CubeMX 4.26.1
Date	09/01/2018

1.2. MCU

MCU Series	STM32F1
MCU Line	STM32F103
MCU name	STM32F103VETx
MCU Package	LQFP100
MCU Pin number	100

2. Pinout Configuration



3. Pins Configuration

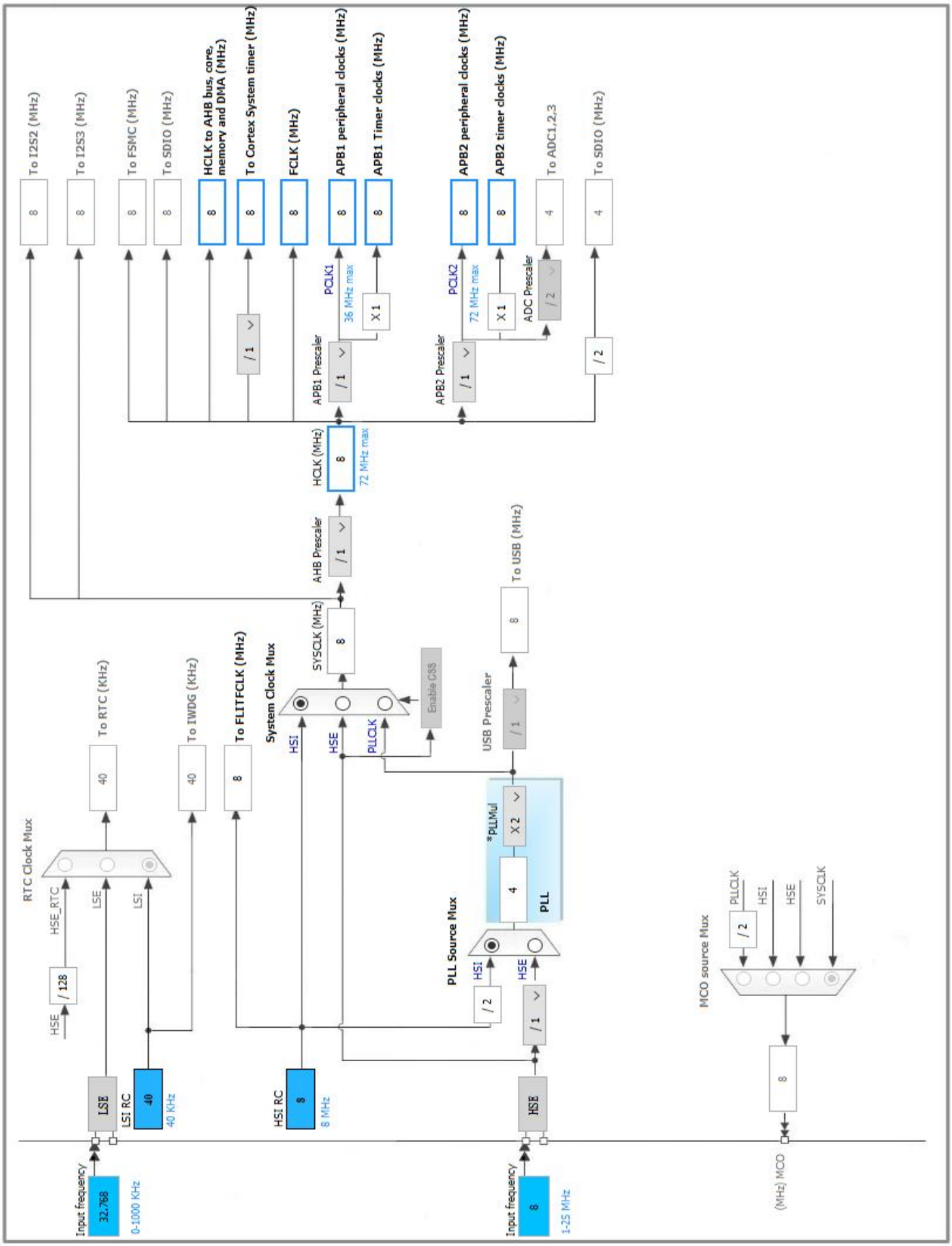
Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	PE2 *	I/O	GPIO_Output	LED3
2	PE3 *	I/O	GPIO_Output	LED2
3	PE4 *	I/O	GPIO_Output	LED1
4	PE5 *	I/O	GPIO_Output	SYS_LED
6	VBAT	Power		
8	PC14-OSC32_IN	I/O	RCC_OSC32_IN	
9	PC15-OSC32_OUT	I/O	RCC_OSC32_OUT	
10	VSS	Power		
11	VDD	Power		
12	OSC_IN	I/O	RCC_OSC_IN	
13	OSC_OUT	I/O	RCC_OSC_OUT	
14	NRST	Reset		
19	VSSA	Power		
20	VREF-	Power		
21	VREF+	Power		
22	VDDA	Power		
25	PA2	I/O	USART2_TX	DEBUG_TX
26	PA3	I/O	USART2_RX	DEBUG_RX
27	VSS	Power		
28	VDD	Power		
29	PA4 *	I/O	GPIO_Input	KEY1
30	PA5 *	I/O	GPIO_Input	KEY2
31	PA6 *	I/O	GPIO_Input	KEY3
32	PA7 *	I/O	GPIO_Input	KEY4
33	PC4 *	I/O	GPIO_Input	KEY5
34	PC5 *	I/O	GPIO_Input	KEY6
35	PB0 *	I/O	GPIO_Input	KEY7
36	PB1 *	I/O	GPIO_Input	KEY8
38	PE7 *	I/O	GPIO_Input	KEY9
39	PE8 *	I/O	GPIO_Input	KEY10
40	PE9 *	I/O	GPIO_Input	KEY11
41	PE10 *	I/O	GPIO_Input	KEY12
42	PE11 *	I/O	GPIO_Input	KEY13
43	PE12 *	I/O	GPIO_Input	KEY14
44	PE13 *	I/O	GPIO_Input	KEY15
45	PE14 *	I/O	GPIO_Input	KEY16

Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
46	PE15 *	I/O	GPIO_Input	KEY17
47	PB10 *	I/O	GPIO_Input	KEY18
48	PB11 *	I/O	GPIO_Input	KEY19
49	VSS	Power		
50	VDD	Power		
51	PB12 *	I/O	GPIO_Input	KEY20
52	PB13 *	I/O	GPIO_Input	KEY21
53	PB14 *	I/O	GPIO_Input	KEY22
54	PB15 *	I/O	GPIO_Input	KEY23
55	PD8 *	I/O	GPIO_Input	KEY24
68	PA9	I/O	USART1_TX	RS232_TX
69	PA10	I/O	USART1_RX	RS232_RX
72	PA13	I/O	SYS_JTMS-SWDIO	
73	NC	NC		
74	VSS	Power		
75	VDD	Power		
76	PA14	I/O	SYS_JTCK-SWCLK	
77	PA15 *	I/O	GPIO_Output	LED24
78	PC10 *	I/O	GPIO_Output	LED23
79	PC11 *	I/O	GPIO_Output	LED22
80	PC12 *	I/O	GPIO_Output	LED21
81	PD0 *	I/O	GPIO_Output	LED20
82	PD1 *	I/O	GPIO_Output	LED19
83	PD2 *	I/O	GPIO_Output	LED18
84	PD3 *	I/O	GPIO_Output	LED17
85	PD4 *	I/O	GPIO_Output	LED16
86	PD5 *	I/O	GPIO_Output	LED15
87	PD6 *	I/O	GPIO_Output	LED14
88	PD7 *	I/O	GPIO_Output	LED13
89	PB3 *	I/O	GPIO_Output	LED12
90	PB4 *	I/O	GPIO_Output	LED11
91	PB5 *	I/O	GPIO_Output	LED10
92	PB6 *	I/O	GPIO_Output	LED9
93	PB7 *	I/O	GPIO_Output	LED8
94	BOOT0	Boot		
95	PB8 *	I/O	GPIO_Output	LED7
96	PB9 *	I/O	GPIO_Output	LED6
97	PE0 *	I/O	GPIO_Output	LED5
98	PE1 *	I/O	GPIO_Output	LED4

Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
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): BYPASS Clock Source

Low Speed Clock (LSE) : BYPASS Clock Source

5.1.1. Parameter Settings:

System Parameters:

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

RCC Parameters:

HSI Calibration Value	16
HSE Startup Timout Value (ms)	100
LSE Startup Timout Value (ms)	5000

5.2. SYS

Debug: Serial Wire

Timebase Source: SysTick

5.3. USART1

Mode: Asynchronous

5.3.1. 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

5.4. USART2

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

*** 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	
	OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	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	
USART1	PA9	USART1_TX	Alternate Function Push Pull	n/a	**High ***	RS232_TX
	PA10	USART1_RX	Input mode	No pull-up and no pull-down	**n/a**	RS232_RX
USART2	PA2	USART2_TX	Alternate Function Push Pull	n/a	**High ***	DEBUG_TX
	PA3	USART2_RX	Input mode	No pull-up and no pull-down	**n/a**	DEBUG_RX
GPIO	PE2	GPIO_Output	Output Push Pull	n/a	Low	LED3
	PE3	GPIO_Output	Output Push Pull	n/a	Low	LED2
	PE4	GPIO_Output	Output Push Pull	n/a	Low	LED1
	PE5	GPIO_Output	Output Push Pull	n/a	Low	SYS_LED
	PA4	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY1
	PA5	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY2
	PA6	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY3
	PA7	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY4
	PC4	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY5
	PC5	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY6
	PB0	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY7
	PB1	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY8
	PE7	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY9
	PE8	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY10
	PE9	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY11
	PE10	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY12
	PE11	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY13
	PE12	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY14
	PE13	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY15
	PE14	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY16
	PE15	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY17

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PB10	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY18
	PB11	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY19
	PB12	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY20
	PB13	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY21
	PB14	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY22
	PB15	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY23
	PD8	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY24
	PA15	GPIO_Output	Output Push Pull	n/a	Low	LED24
	PC10	GPIO_Output	Output Push Pull	n/a	Low	LED23
	PC11	GPIO_Output	Output Push Pull	n/a	Low	LED22
	PC12	GPIO_Output	Output Push Pull	n/a	Low	LED21
	PD0	GPIO_Output	Output Push Pull	n/a	Low	LED20
	PD1	GPIO_Output	Output Push Pull	n/a	Low	LED19
	PD2	GPIO_Output	Output Push Pull	n/a	Low	LED18
	PD3	GPIO_Output	Output Push Pull	n/a	Low	LED17
	PD4	GPIO_Output	Output Push Pull	n/a	Low	LED16
	PD5	GPIO_Output	Output Push Pull	n/a	Low	LED15
	PD6	GPIO_Output	Output Push Pull	n/a	Low	LED14
	PD7	GPIO_Output	Output Push Pull	n/a	Low	LED13
	PB3	GPIO_Output	Output Push Pull	n/a	Low	LED12
	PB4	GPIO_Output	Output Push Pull	n/a	Low	LED11
	PB5	GPIO_Output	Output Push Pull	n/a	Low	LED10
	PB6	GPIO_Output	Output Push Pull	n/a	Low	LED9
	PB7	GPIO_Output	Output Push Pull	n/a	Low	LED8
	PB8	GPIO_Output	Output Push Pull	n/a	Low	LED7
	PB9	GPIO_Output	Output Push Pull	n/a	Low	LED6
	PE0	GPIO_Output	Output Push Pull	n/a	Low	LED5
	PE1	GPIO_Output	Output Push Pull	n/a	Low	LED4

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
Prefetch 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
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
USART1 global interrupt	unused		
USART2 global interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F1
Line	STM32F103
MCU	STM32F103VETx
Datasheet	14611_Rev12

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	led_contorl
Project Folder	F:\workspace\STM32\xiaolong\led_control
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_F1 V1.6.1

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	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

9. Software Pack Report