1. Description

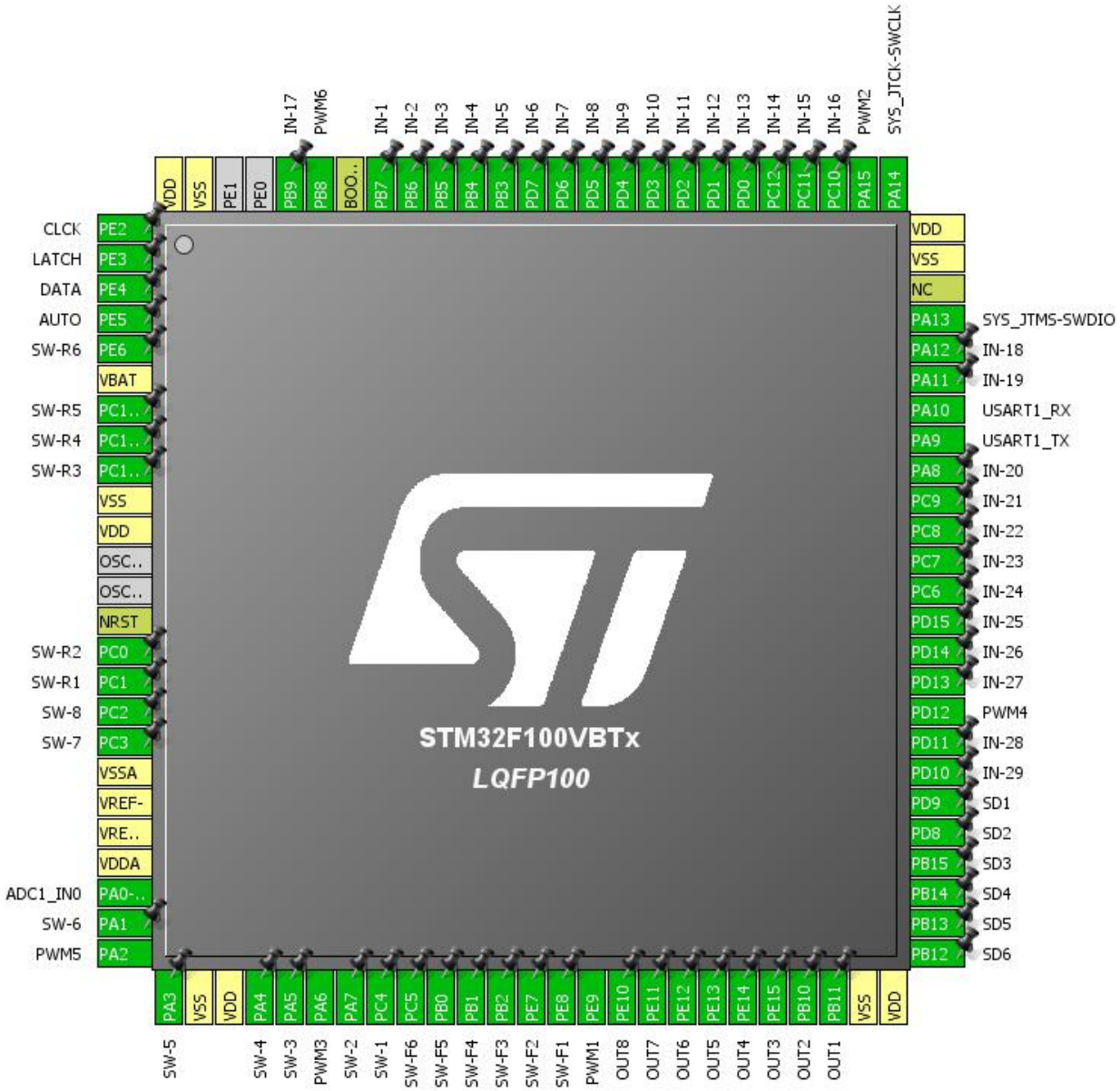
1.1. Project

Project Name	VMC_JAAVIN
Board Name	No information
Generated with:	STM32CubeMX 4.23.0
Date	01/09/2018

1.2. MCU

MCU Series	STM32F1
MCU Line	STM32F100 Value Line
MCU name	STM32F100VBTx
MCU Package	LQFP100
MCU Pin number	100

2. Pinout Configuration



3. Pins Configuration

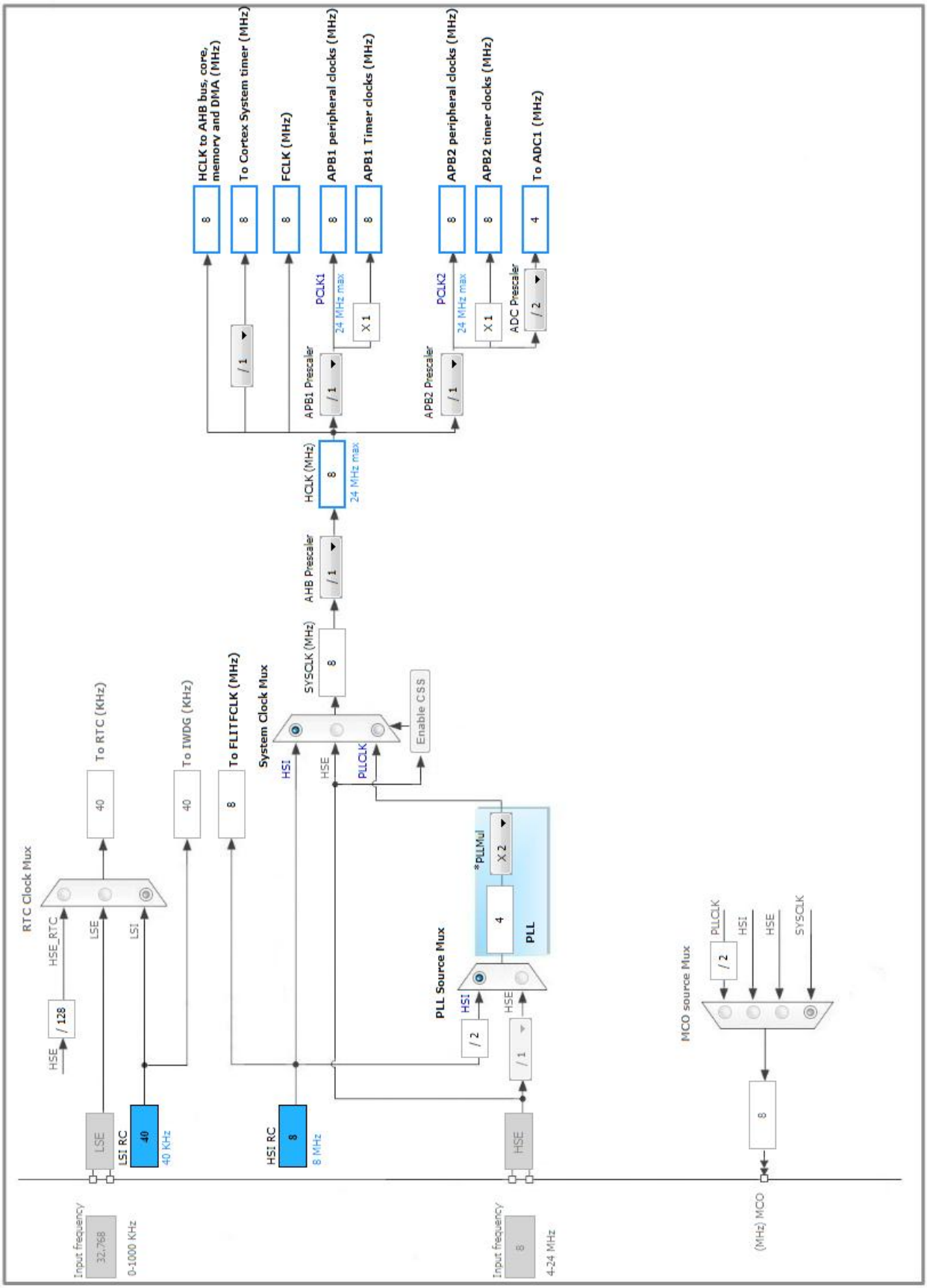
Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	PE2 *	I/O	GPIO_Output	CLCK
2	PE3 *	I/O	GPIO_Output	LATCH
3	PE4 *	I/O	GPIO_Output	DATA
4	PE5 *	I/O	GPIO_Input	AUTO
5	PE6 *	I/O	GPIO_Input	SW-R6
6	VBAT	Power		
7	PC13-TAMPER-RTC *	I/O	GPIO_Input	SW-R5
8	PC14-OSC32_IN *	I/O	GPIO_Input	SW-R4
9	PC15-OSC32_OUT *	I/O	GPIO_Input	SW-R3
10	VSS	Power		
11	VDD	Power		
14	NRST	Reset		
15	PC0 *	I/O	GPIO_Input	SW-R2
16	PC1 *	I/O	GPIO_Input	SW-R1
17	PC2 *	I/O	GPIO_Input	SW-8
18	PC3 *	I/O	GPIO_Input	SW-7
19	VSSA	Power		
20	VREF-	Power		
21	VREF+	Power		
22	VDDA	Power		
23	PA0-WKUP	I/O	ADC1_IN0	
24	PA1 *	I/O	GPIO_Input	SW-6
25	PA2	I/O	TIM15_CH1	PWM5
26	PA3 *	I/O	GPIO_Input	SW-5
27	VSS	Power		
28	VDD	Power		
29	PA4 *	I/O	GPIO_Input	SW-4
30	PA5 *	I/O	GPIO_Input	SW-3
31	PA6	I/O	TIM3_CH1	PWM3
32	PA7 *	I/O	GPIO_Input	SW-2
33	PC4 *	I/O	GPIO_Input	SW-1
34	PC5 *	I/O	GPIO_Input	SW-F6
35	PB0 *	I/O	GPIO_Input	SW-F5
36	PB1 *	I/O	GPIO_Input	SW-F4
37	PB2 *	I/O	GPIO_Input	SW-F3
38	PE7 *	I/O	GPIO_Input	SW-F2

Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
39	PE8 *	I/O	GPIO_Input	SW-F1
40	PE9	I/O	TIM1_CH1	PWM1
41	PE10 *	I/O	GPIO_Output	OUT8
42	PE11 *	I/O	GPIO_Output	OUT7
43	PE12 *	I/O	GPIO_Output	OUT6
44	PE13 *	I/O	GPIO_Output	OUT5
45	PE14 *	I/O	GPIO_Output	OUT4
46	PE15 *	I/O	GPIO_Output	OUT3
47	PB10 *	I/O	GPIO_Output	OUT2
48	PB11 *	I/O	GPIO_Output	OUT1
49	VSS	Power		
50	VDD	Power		
51	PB12 *	I/O	GPIO_Output	SD6
52	PB13 *	I/O	GPIO_Output	SD5
53	PB14 *	I/O	GPIO_Output	SD4
54	PB15 *	I/O	GPIO_Output	SD3
55	PD8 *	I/O	GPIO_Output	SD2
56	PD9 *	I/O	GPIO_Output	SD1
57	PD10 *	I/O	GPIO_Output	IN-29
58	PD11 *	I/O	GPIO_Input	IN-28
59	PD12	I/O	TIM4_CH1	PWM4
60	PD13 *	I/O	GPIO_Output	IN-27
61	PD14 *	I/O	GPIO_Output	IN-26
62	PD15 *	I/O	GPIO_Output	IN-25
63	PC6 *	I/O	GPIO_Output	IN-24
64	PC7 *	I/O	GPIO_Output	IN-23
65	PC8 *	I/O	GPIO_Output	IN-22
66	PC9 *	I/O	GPIO_Output	IN-21
67	PA8 *	I/O	GPIO_Output	IN-20
68	PA9	I/O	USART1_TX	
69	PA10	I/O	USART1_RX	
70	PA11 *	I/O	GPIO_Output	IN-19
71	PA12 *	I/O	GPIO_Output	IN-18
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	TIM2_CH1	PWM2

Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
78	PC10 *	I/O	GPIO_Output	IN-16
79	PC11 *	I/O	GPIO_Output	IN-15
80	PC12 *	I/O	GPIO_Output	IN-14
81	PD0 *	I/O	GPIO_Output	IN-13
82	PD1 *	I/O	GPIO_Output	IN-12
83	PD2 *	I/O	GPIO_Output	IN-11
84	PD3 *	I/O	GPIO_Output	IN-10
85	PD4 *	I/O	GPIO_Output	IN-9
86	PD5 *	I/O	GPIO_Output	IN-8
87	PD6 *	I/O	GPIO_Output	IN-7
88	PD7 *	I/O	GPIO_Output	IN-6
89	PB3 *	I/O	GPIO_Output	IN-5
90	PB4 *	I/O	GPIO_Output	IN-4
91	PB5 *	I/O	GPIO_Output	IN-3
92	PB6 *	I/O	GPIO_Output	IN-2
93	PB7 *	I/O	GPIO_Output	IN-1
94	BOOT0	Boot		
95	PB8	I/O	TIM16_CH1	PWM6
96	PB9 *	I/O	GPIO_Output	IN-17
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

mode: IN0

5.1.1. Parameter Settings:

ADC_Settings:

Data Alignment	Right alignment
Scan Conversion Mode	Disabled
Continuous Conversion Mode	Disabled
Discontinuous Conversion Mode	Disabled

ADC_Regular_ConversionMode:

Enable Regular Conversions	Enable
Number Of Conversion	1
External Trigger Conversion Source	Regular Conversion launched by software
Rank	1
Channel	Channel 0
Sampling Time	1.5 Cycles

ADC_Injected_ConversionMode:

Number Of Conversions	0

WatchDog:

Enable Analog WatchDog Mode	false

5.2. SYS

Debug: Serial Wire

Timebase Source: SysTick

5.3. TIM1

Channel1: PWM Generation CH1

5.3.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up

Counter Period (AutoReload Register - 16 bits value)	0
Internal Clock Division (CKD)	No Division
Repetition Counter (RCR - 8 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	Reset (UG bit from TIMx_EGR)

Break And Dead Time management - BRK Configuration:

BRK State	Disable
BRK Polarity	High

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

5.4. TIM2

Channel1: PWM Generation CH1

5.4.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	0
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	Reset (UG bit from TIMx_EGR)

PWM Generation Channel 1:

Mode	PWM mode 1
Pulse (16 bits value)	0

Fast Mode	Disable
CH Polarity	High

5.5. TIM3

Channel1: PWM Generation CH1

5.5.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	0
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	Reset (UG bit from TIMx_EGR)

PWM Generation Channel 1:

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

5.6. TIM4

Channel1: PWM Generation CH1

5.6.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	0
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	Reset (UG bit from TIMx_EGR)

PWM Generation Channel 1:

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

5.7. TIM15

Channel1: PWM Generation CH1

5.7.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	0
Internal Clock Division (CKD)	No Division
Repetition Counter (RCR - 8 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	Reset (UG bit from TIMx_EGR)

Break And Dead Time management - BRK Configuration:

BRK State	Disable
BRK Polarity	High

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

5.8. TIM16

mode: Activated

Channel1: PWM Generation CH1

5.8.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	0
Internal Clock Division (CKD)	No Division
Repetition Counter (RCR - 8 bits value)	0
auto-reload preload	Disable

Break And Dead Time management - BRK Configuration:

BRK State	Disable
BRK Polarity	High

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

5.9. USART1

Mode: Asynchronous

5.9.1. 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
ADC1	PA0-WKUP	ADC1_IN0	Analog mode	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	n/a	Low	PWM1
TIM2	PA15	TIM2_CH1	Alternate Function Push Pull	n/a	Low	PWM2
TIM3	PA6	TIM3_CH1	Alternate Function Push Pull	n/a	Low	PWM3
TIM4	PD12	TIM4_CH1	Alternate Function Push Pull	n/a	Low	PWM4
TIM15	PA2	TIM15_CH1	Alternate Function Push Pull	n/a	Low	PWM5
TIM16	PB8	TIM16_CH1	Alternate Function Push Pull	n/a	Low	PWM6
USART1	PA9	USART1_TX	Alternate Function Push Pull	n/a	**High ***	
	PA10	USART1_RX	Input mode	No pull-up and no pull-down	**n/a**	
GPIO	PE2	GPIO_Output	Output Push Pull	n/a	Low	CLCK
	PE3	GPIO_Output	Output Push Pull	n/a	Low	LATCH
	PE4	GPIO_Output	Output Push Pull	n/a	Low	DATA
	PE5	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	AUTO
	PE6	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SW-R6
	PC13-TAMPER-RTC	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SW-R5
	PC14-OSC32_IN	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SW-R4
	PC15-OSC32_OUT	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SW-R3
	PC0	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SW-R2
	PC1	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SW-R1
	PC2	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SW-8
	PC3	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SW-7
	PA1	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SW-6
	PA3	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SW-5
	PA4	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SW-4
	PA5	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SW-3
	PA7	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SW-2

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PC4	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SW-1
	PC5	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SW-F6
	PB0	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SW-F5
	PB1	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SW-F4
	PB2	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SW-F3
	PE7	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SW-F2
	PE8	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SW-F1
	PE10	GPIO_Output	Output Push Pull	n/a	Low	OUT8
	PE11	GPIO_Output	Output Push Pull	n/a	Low	OUT7
	PE12	GPIO_Output	Output Push Pull	n/a	Low	OUT6
	PE13	GPIO_Output	Output Push Pull	n/a	Low	OUT5
	PE14	GPIO_Output	Output Push Pull	n/a	Low	OUT4
	PE15	GPIO_Output	Output Push Pull	n/a	Low	OUT3
	PB10	GPIO_Output	Output Push Pull	n/a	Low	OUT2
	PB11	GPIO_Output	Output Push Pull	n/a	Low	OUT1
	PB12	GPIO_Output	Output Push Pull	n/a	Low	SD6
	PB13	GPIO_Output	Output Push Pull	n/a	Low	SD5
	PB14	GPIO_Output	Output Push Pull	n/a	Low	SD4
	PB15	GPIO_Output	Output Push Pull	n/a	Low	SD3
	PD8	GPIO_Output	Output Push Pull	n/a	Low	SD2
	PD9	GPIO_Output	Output Push Pull	n/a	Low	SD1
	PD10	GPIO_Output	Output Push Pull	n/a	Low	IN-29
	PD11	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	IN-28
	PD13	GPIO_Output	Output Push Pull	n/a	Low	IN-27
	PD14	GPIO_Output	Output Push Pull	n/a	Low	IN-26
	PD15	GPIO_Output	Output Push Pull	n/a	Low	IN-25
	PC6	GPIO_Output	Output Push Pull	n/a	Low	IN-24
	PC7	GPIO_Output	Output Push Pull	n/a	Low	IN-23
	PC8	GPIO_Output	Output Push Pull	n/a	Low	IN-22
	PC9	GPIO_Output	Output Push Pull	n/a	Low	IN-21
	PA8	GPIO_Output	Output Push Pull	n/a	Low	IN-20
	PA11	GPIO_Output	Output Push Pull	n/a	Low	IN-19
	PA12	GPIO_Output	Output Push Pull	n/a	Low	IN-18
	PC10	GPIO_Output	Output Push Pull	n/a	Low	IN-16
	PC11	GPIO_Output	Output Push Pull	n/a	Low	IN-15
	PC12	GPIO_Output	Output Push Pull	n/a	Low	IN-14
	PD0	GPIO_Output	Output Push Pull	n/a	Low	IN-13
	PD1	GPIO_Output	Output Push Pull	n/a	Low	IN-12
	PD2	GPIO_Output	Output Push Pull	n/a	Low	IN-11
	PD3	GPIO_Output	Output Push Pull	n/a	Low	IN-10

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PD4	GPIO_Output	Output Push Pull	n/a	Low	IN-9
	PD5	GPIO_Output	Output Push Pull	n/a	Low	IN-8
	PD6	GPIO_Output	Output Push Pull	n/a	Low	IN-7
	PD7	GPIO_Output	Output Push Pull	n/a	Low	IN-6
	PB3	GPIO_Output	Output Push Pull	n/a	Low	IN-5
	PB4	GPIO_Output	Output Push Pull	n/a	Low	IN-4
	PB5	GPIO_Output	Output Push Pull	n/a	Low	IN-3
	PB6	GPIO_Output	Output Push Pull	n/a	Low	IN-2
	PB7	GPIO_Output	Output Push Pull	n/a	Low	IN-1
	PB9	GPIO_Output	Output Push Pull	n/a	Low	IN-17

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		
ADC1 global interrupt	unused		
TIM1 break interrupt and TIM15 global interrupt	unused		
TIM1 update interrupt and TIM16 global interrupt	unused		
TIM1 trigger and commutation interrupts and TIM17 global interrupt	unused		
TIM1 capture compare interrupt	unused		
TIM2 global interrupt	unused		
TIM3 global interrupt	unused		
TIM4 global interrupt	unused		
USART1 global interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F1
Line	STM32F100 Value Line
MCU	STM32F100VBTx
Datasheet	16455_Rev9

7.2. Parameter Selection

Temperature	25
Vdd	3.3