
STM32
CubeMX

1. Description

1.1. Project

Project Name	JN910_HwVersionC_V1
Board Name	custom
Generated with:	STM32CubeMX 6.2.1
Date	01/04/2022

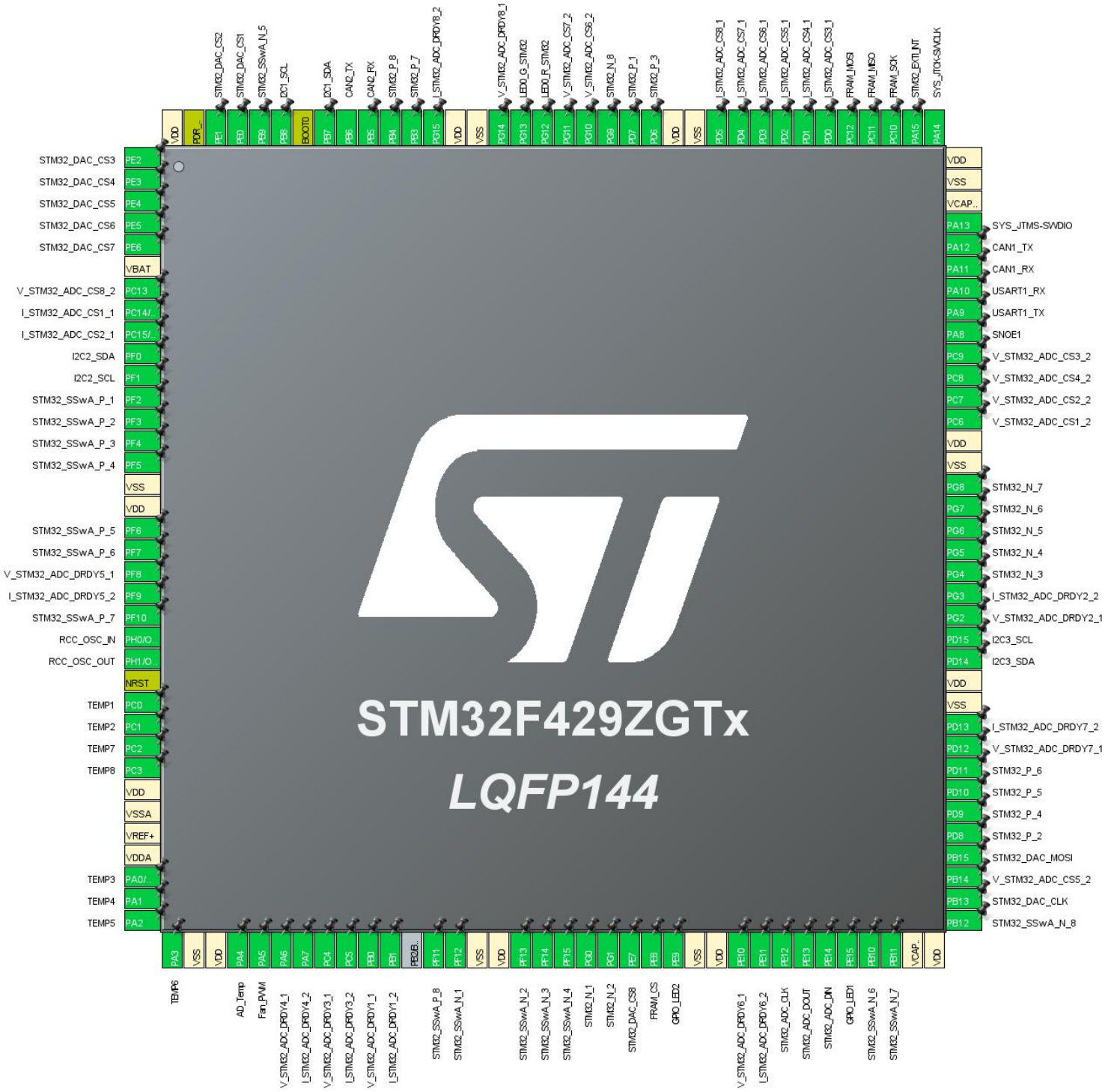
1.2. MCU

MCU Series	STM32F4
MCU Line	STM32F429/439
MCU name	STM32F429ZGTx
MCU Package	LQFP144
MCU Pin number	144

1.3. Core(s) information

Core(s)	Arm Cortex-M4

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_Output	STM32_DAC_CS3
2	PE3 *	I/O	GPIO_Output	STM32_DAC_CS4
3	PE4 *	I/O	GPIO_Output	STM32_DAC_CS5
4	PE5 *	I/O	GPIO_Output	STM32_DAC_CS6
5	PE6 *	I/O	GPIO_Output	STM32_DAC_CS7
6	VBAT	Power		
7	PC13 *	I/O	GPIO_Output	V_STM32_ADC_CS8_2
8	PC14/OSC32_IN *	I/O	GPIO_Output	I_STM32_ADC_CS1_1
9	PC15/OSC32_OUT *	I/O	GPIO_Output	I_STM32_ADC_CS2_1
10	PF0 *	I/O	GPIO_Output	I2C2_SDA
11	PF1 *	I/O	GPIO_Output	I2C2_SCL
12	PF2 *	I/O	GPIO_Output	STM32_SSwA_P_1
13	PF3 *	I/O	GPIO_Output	STM32_SSwA_P_2
14	PF4 *	I/O	GPIO_Output	STM32_SSwA_P_3
15	PF5 *	I/O	GPIO_Output	STM32_SSwA_P_4
16	VSS	Power		
17	VDD	Power		
18	PF6 *	I/O	GPIO_Output	STM32_SSwA_P_5
19	PF7 *	I/O	GPIO_Output	STM32_SSwA_P_6
20	PF8	I/O	GPIO_EXTI8	V_STM32_ADC_DRDY5_1
21	PF9	I/O	GPIO_EXTI9	I_STM32_ADC_DRDY5_2
22	PF10 *	I/O	GPIO_Output	STM32_SSwA_P_7
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	ADC1_IN10	TEMP1
27	PC1	I/O	ADC1_IN11	TEMP2
28	PC2	I/O	ADC1_IN12	TEMP7
29	PC3	I/O	ADC1_IN13	TEMP8
30	VDD	Power		
31	VSSA	Power		
32	VREF+	Power		
33	VDDA	Power		
34	PA0/WKUP	I/O	ADC1_IN0	TEMP3
35	PA1	I/O	ADC1_IN1	TEMP4
36	PA2	I/O	ADC1_IN2	TEMP5

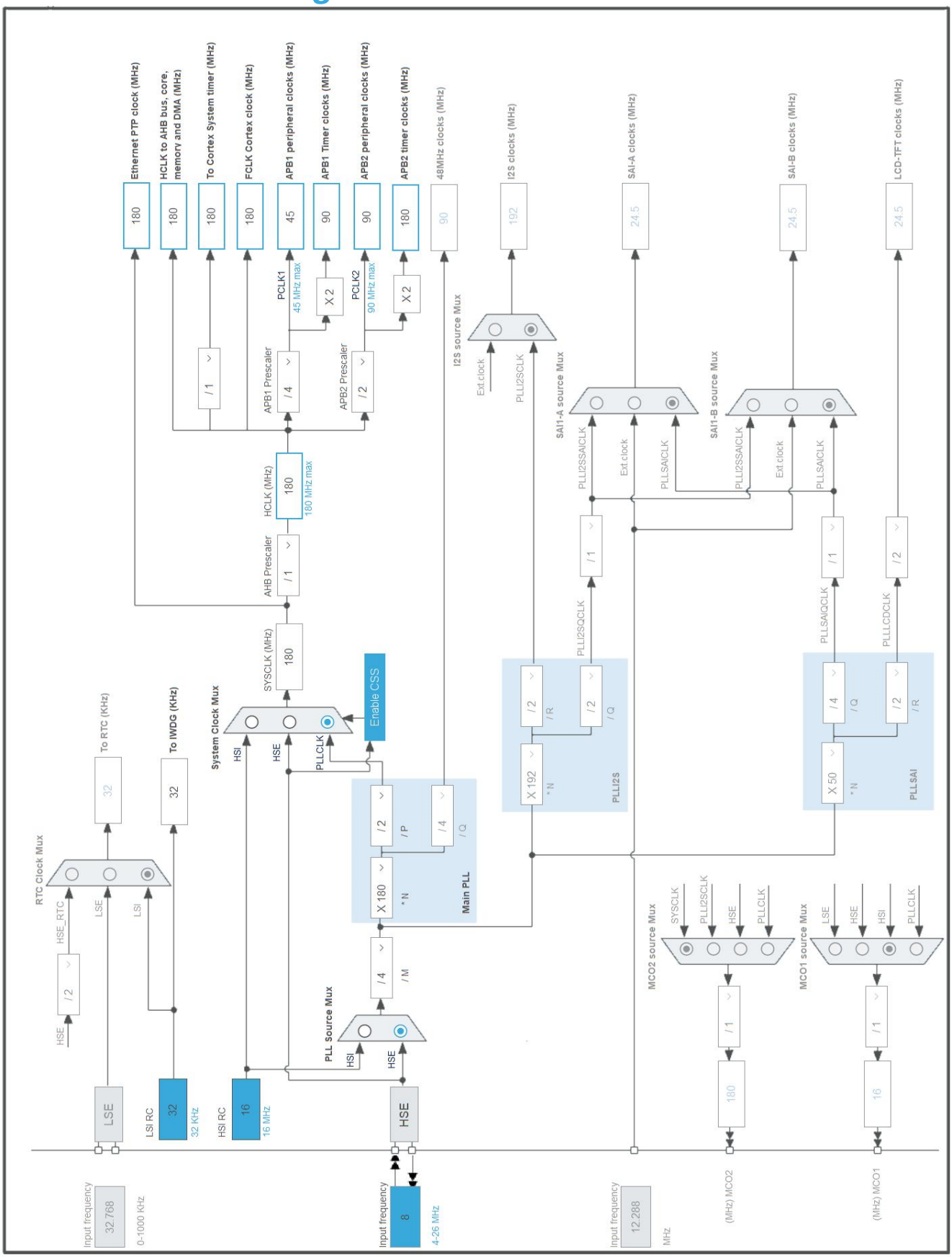
Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
37	PA3	I/O	ADC1_IN3	TEMP6
38	VSS	Power		
39	VDD	Power		
40	PA4	I/O	ADC1_IN4	AD_Temp
41	PA5	I/O	TIM2_CH1	Fan_PWM
42	PA6	I/O	GPIO_EXTI6	V_STM32_ADC_DRDY4_1
43	PA7	I/O	GPIO_EXTI7	I_STM32_ADC_DRDY4_2
44	PC4	I/O	GPIO_EXTI4	V_STM32_ADC_DRDY3_1
45	PC5	I/O	GPIO_EXTI5	I_STM32_ADC_DRDY3_2
46	PB0	I/O	GPIO_EXTI0	V_STM32_ADC_DRDY1_1
47	PB1	I/O	GPIO_EXTI1	I_STM32_ADC_DRDY1_2
49	PF11 *	I/O	GPIO_Output	STM32_SSwA_P_8
50	PF12 *	I/O	GPIO_Output	STM32_SSwA_N_1
51	VSS	Power		
52	VDD	Power		
53	PF13 *	I/O	GPIO_Output	STM32_SSwA_N_2
54	PF14 *	I/O	GPIO_Output	STM32_SSwA_N_3
55	PF15 *	I/O	GPIO_Output	STM32_SSwA_N_4
56	PG0 *	I/O	GPIO_Output	STM32_N_1
57	PG1 *	I/O	GPIO_Output	STM32_N_2
58	PE7 *	I/O	GPIO_Output	STM32_DAC_CS8
59	PE8 *	I/O	GPIO_Output	FRAM_CS
60	PE9 *	I/O	GPIO_Output	GPIO_LED2
61	VSS	Power		
62	VDD	Power		
63	PE10	I/O	GPIO_EXTI10	V_STM32_ADC_DRDY6_1
64	PE11	I/O	GPIO_EXTI11	I_STM32_ADC_DRDY6_2
65	PE12	I/O	SPI4_SCK	STM32_ADC_CLK
66	PE13	I/O	SPI4_MISO	STM32_ADC_DOUT
67	PE14	I/O	SPI4_MOSI	STM32_ADC_DIN
68	PE15 *	I/O	GPIO_Output	GPIO_LED1
69	PB10 *	I/O	GPIO_Output	STM32_SSwA_N_6
70	PB11 *	I/O	GPIO_Output	STM32_SSwA_N_7
71	VCAP_1	Power		
72	VDD	Power		
73	PB12 *	I/O	GPIO_Output	STM32_SSwA_N_8
74	PB13	I/O	SPI2_SCK	STM32_DAC_CLK
75	PB14 *	I/O	GPIO_Output	V_STM32_ADC_CS5_2
76	PB15	I/O	SPI2_MOSI	STM32_DAC_MOSI

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
77	PD8 *	I/O	GPIO_Output	STM32_P_2
78	PD9 *	I/O	GPIO_Output	STM32_P_4
79	PD10 *	I/O	GPIO_Output	STM32_P_5
80	PD11 *	I/O	GPIO_Output	STM32_P_6
81	PD12	I/O	GPIO_EXTI12	V_STM32_ADC_DRDY7_1
82	PD13	I/O	GPIO_EXTI13	I_STM32_ADC_DRDY7_2
83	VSS	Power		
84	VDD	Power		
85	PD14 *	I/O	GPIO_Output	I2C3_SDA
86	PD15 *	I/O	GPIO_Output	I2C3_SCL
87	PG2	I/O	GPIO_EXTI2	V_STM32_ADC_DRDY2_1
88	PG3	I/O	GPIO_EXTI3	I_STM32_ADC_DRDY2_2
89	PG4 *	I/O	GPIO_Output	STM32_N_3
90	PG5 *	I/O	GPIO_Output	STM32_N_4
91	PG6 *	I/O	GPIO_Output	STM32_N_5
92	PG7 *	I/O	GPIO_Output	STM32_N_6
93	PG8 *	I/O	GPIO_Output	STM32_N_7
94	VSS	Power		
95	VDD	Power		
96	PC6 *	I/O	GPIO_Output	V_STM32_ADC_CS1_2
97	PC7 *	I/O	GPIO_Output	V_STM32_ADC_CS2_2
98	PC8 *	I/O	GPIO_Output	V_STM32_ADC_CS4_2
99	PC9 *	I/O	GPIO_Output	V_STM32_ADC_CS3_2
100	PA8 *	I/O	GPIO_Output	SNOE1
101	PA9	I/O	USART1_TX	
102	PA10	I/O	USART1_RX	
103	PA11	I/O	CAN1_RX	
104	PA12	I/O	CAN1_TX	
105	PA13	I/O	SYS_JTMS-SWDIO	
106	VCAP_2	Power		
107	VSS	Power		
108	VDD	Power		
109	PA14	I/O	SYS_JTCK-SWCLK	
110	PA15 *	I/O	GPIO_Input	STM32_EXTI_INT
111	PC10	I/O	SPI3_SCK	FRAM_SCK
112	PC11	I/O	SPI3_MISO	FRAM_MISO
113	PC12	I/O	SPI3_MOSI	FRAM_MOSI
114	PD0 *	I/O	GPIO_Output	I_STM32_ADC_CS3_1
115	PD1 *	I/O	GPIO_Output	I_STM32_ADC_CS4_1

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
116	PD2 *	I/O	GPIO_Output	I_STM32_ADC_CS5_1
117	PD3 *	I/O	GPIO_Output	I_STM32_ADC_CS6_1
118	PD4 *	I/O	GPIO_Output	I_STM32_ADC_CS7_1
119	PD5 *	I/O	GPIO_Output	I_STM32_ADC_CS8_1
120	VSS	Power		
121	VDD	Power		
122	PD6 *	I/O	GPIO_Output	STM32_P_3
123	PD7 *	I/O	GPIO_Output	STM32_P_1
124	PG9 *	I/O	GPIO_Output	STM32_N_8
125	PG10 *	I/O	GPIO_Output	V_STM32_ADC_CS6_2
126	PG11 *	I/O	GPIO_Output	V_STM32_ADC_CS7_2
127	PG12 *	I/O	GPIO_Output	LED0_R_STM32
128	PG13 *	I/O	GPIO_Output	LED0_G_STM32
129	PG14	I/O	GPIO_EXTI14	V_STM32_ADC_DRDY8_1
130	VSS	Power		
131	VDD	Power		
132	PG15	I/O	GPIO_EXTI15	I_STM32_ADC_DRDY8_2
133	PB3 *	I/O	GPIO_Output	STM32_P_7
134	PB4 *	I/O	GPIO_Output	STM32_P_8
135	PB5	I/O	CAN2_RX	
136	PB6	I/O	CAN2_TX	
137	PB7 *	I/O	GPIO_Output	I2C1_SDA
138	BOOT0	Boot		
139	PB8 *	I/O	GPIO_Output	I2C1_SCL
140	PB9 *	I/O	GPIO_Output	STM32_SSwA_N_5
141	PE0 *	I/O	GPIO_Output	STM32_DAC_CS1
142	PE1 *	I/O	GPIO_Output	STM32_DAC_CS2
143	PDR_ON	Reset		
144	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. Software Project

5.1. Project Settings

Name	Value
Project Name	JN910_HwVersionC_V1.0
Project Folder	D:\WorkPlan\JN910_Project_Code\JN910_HwVersionC_V1.0
Toolchain / IDE	MDK-ARM V5.27
Firmware Package Name and Version	STM32Cube FW_F4 V1.26.2
Application Structure	Advanced
Generate Under Root	No
Do not generate the main()	No
Minimum Heap Size	0x200
Minimum Stack Size	0x400

5.2. Code Generation Settings

Name	Value
STM32Cube MCU packages and embedded software	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
Keep User Code 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
Enable Full Assert	No

5.3. Advanced Settings - Generated Function Calls

Rank	Function Name	Peripheral Instance Name
1	SystemClock_Config	RCC
2	MX_GPIO_Init	GPIO
3	MX_DMA_Init	DMA
4	MX_ADC1_Init	ADC1
5	MX_CAN1_Init	CAN1
6	MX_CAN2_Init	CAN2
7	MX_IWDG_Init	IWDG
8	MX_SPI2_Init	SPI2
9	MX_SPI3_Init	SPI3
10	MX_SPI4_Init	SPI4
11	MX_TIM10_Init	TIM10

Rank	Function Name	Peripheral Instance Name
12	MX_USART1_UART_Init	USART1
13	MX_TIM2_Init	TIM2

6. Power Consumption Calculator report

6.1. Microcontroller Selection

Series	STM32F4
Line	STM32F429/439
MCU	STM32F429ZGTx
Datasheet	DS9405_Rev9

6.2. Parameter Selection

Temperature	25
Vdd	3.3

6.3. Battery Selection

Battery	Li-SOCL2(A3400)
Capacity	3400.0 mAh
Self Discharge	0.08 %/month
Nominal Voltage	3.6 V
Max Cont Current	100.0 mA
Max Pulse Current	200.0 mA
Cells in series	1
Cells in parallel	1

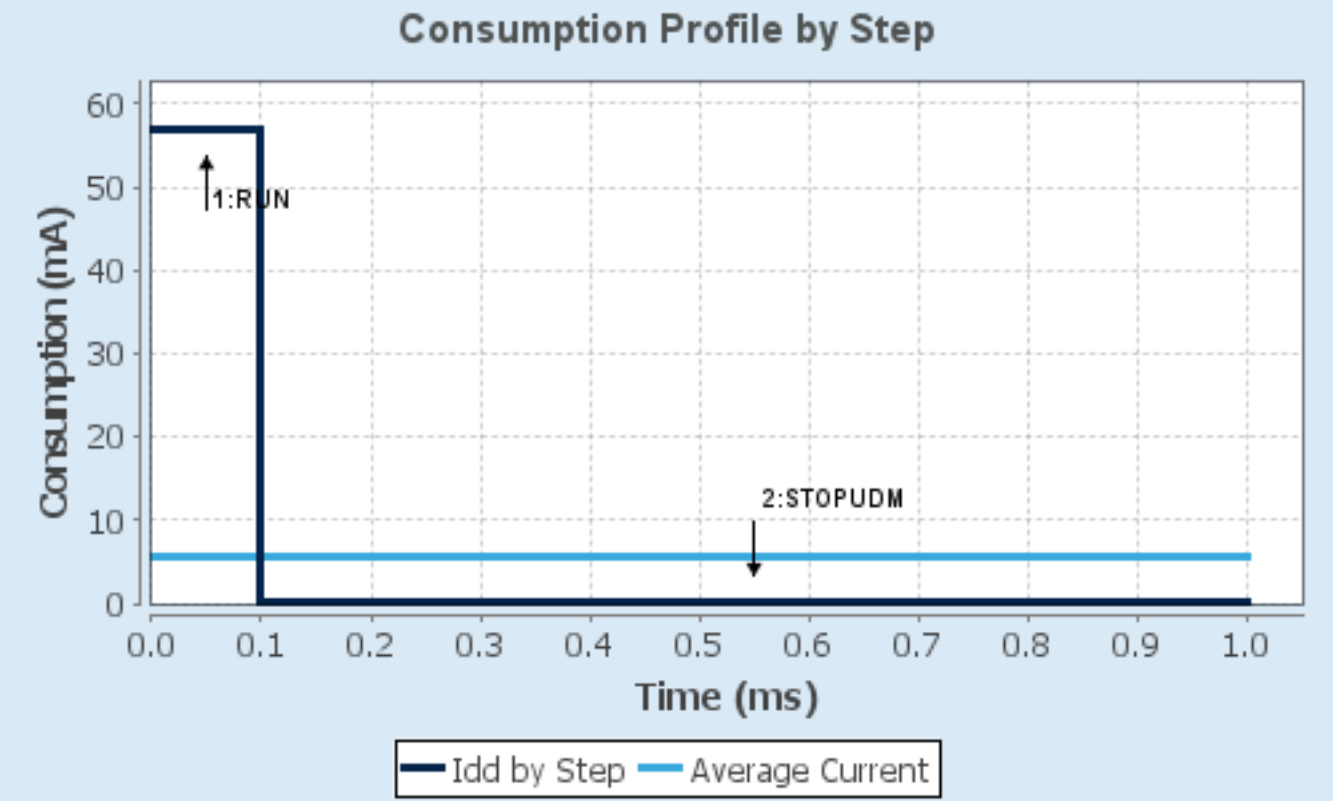
6.4. Sequence

Step	Step1	Step2
Mode	RUN	STOP_UDM (Under Drive)
Vdd	3.3	3.3
Voltage Source	Battery	Battery
Range	Scale1-High	No Scale
Fetch Type	FLASH	n/a
CPU Frequency	180 MHz	0 Hz
Clock Configuration	HSE PLL	Regulator_LP Flash-PwrDwn
Clock Source Frequency	4 MHz	0 Hz
Peripherals		
Additional Cons.	0 mA	0 mA
Average Current	57 mA	100 µA
Duration	0.1 ms	0.9 ms
DMIPS	225.0	0.0
Ta Max	97.48	104.99
Category	In DS Table	In DS Table

6.5. Results

Sequence Time	1 ms	Average Current	5.79 mA
Battery Life	24 days, 10 hours	Average DMIPS	225.0 DMIPS

6.6. Chart


Consumption Profile by Step
Consumption (mA)
60
50
40
30
20
10
0
1:RUN
2:STOPUDM
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Time (ms)
Idd by Step
Average Current

7. Peripherals and Middlewares Configuration

7.1. ADC1

mode: IN0

mode: IN1

mode: IN2

mode: IN3

mode: IN4

mode: IN10

mode: IN11

mode: IN12

mode: IN13

7.1.1. 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	**9 ***
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None
Rank	1
Channel	Channel 0
Sampling Time	**15 Cycles ***
Rank	**2 ***
Channel	**Channel 1 ***
Sampling Time	**15 Cycles ***
Rank	**3 ***
Channel	**Channel 2 ***
Sampling Time	**15 Cycles ***

Rank	**4 ***
Channel	**Channel 3 ***
Sampling Time	**15 Cycles ***
Rank	**5 ***
Channel	**Channel 4 ***
Sampling Time	**15 Cycles ***
Rank	**6 ***
Channel	**Channel 10 ***
Sampling Time	**15 Cycles ***
Rank	**7 ***
Channel	**Channel 11 ***
Sampling Time	**15 Cycles ***
Rank	**8 ***
Channel	**Channel 12 ***
Sampling Time	**15 Cycles ***
Rank	**9 ***
Channel	**Channel 13 ***
Sampling Time	**15 Cycles ***

ADC_Injected_ConversionMode:

Number Of Conversions	0

WatchDog:

Enable Analog WatchDog Mode	false

7.2. CAN1

mode: Activated

7.2.1. Parameter Settings:

Bit Timings Parameters:

Prescaler (for Time Quantum)	**15 ***
Time Quantum	**333.3333333333333 ***
Time Quanta in Bit Segment 1	**4 Times ***
Time Quanta in Bit Segment 2	1 Time
Time for one Bit	**1999.99 ***
Baud Rate	**500000 ***
ReSynchronization Jump Width	1 Time

Basic Parameters:

Time Triggered Communication Mode	Disable
Automatic Bus-Off Management	Disable
Automatic Wake-Up Mode	Disable
Automatic Retransmission	Disable
Receive Fifo Locked Mode	Disable
Transmit Fifo Priority	Disable

Advanced Parameters:

Operating Mode	Normal

7.3. CAN2

mode: Activated

7.3.1. Parameter Settings:

Bit Timings Parameters:

Prescaler (for Time Quantum)	**15 ***
Time Quantum	**333.3333333333333 ***
Time Quanta in Bit Segment 1	**4 Times ***
Time Quanta in Bit Segment 2	1 Time
Time for one Bit	**1999.99 ***
Baud Rate	**500000 ***
ReSynchronization Jump Width	1 Time

Basic Parameters:

Time Triggered Communication Mode	Disable
Automatic Bus-Off Management	Disable
Automatic Wake-Up Mode	Disable
Automatic Retransmission	Disable
Receive Fifo Locked Mode	Disable
Transmit Fifo Priority	Disable

Advanced Parameters:

Operating Mode	Normal

7.4. IWDG

mode: Activated

7.4.1. Parameter Settings:

Clocking:

IWDG counter clock prescaler	4
IWDG down-counter reload value	4095

7.5. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

7.5.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Instruction Cache	Enabled
Prefetch Buffer	Enabled
Data Cache	Enabled
Flash Latency(WS)	5 WS (6 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 Regulator Voltage Scale	Power Regulator Voltage Scale 1
Power Over Drive	Enabled

7.6. SPI2

Mode: Transmit Only Master

7.6.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	**22.5 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	**2 Edge ***

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

7.7. SPI3

Mode: Full-Duplex Master

7.7.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	**22.5 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

7.8. SPI4

Mode: Full-Duplex Master

7.8.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	**16 ***
Baud Rate	**5.625 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	**2 Edge ***

Advanced Parameters:

CRC Calculation	Disabled

NSS Signal Type	Software

7.9. SYS

Debug: Serial Wire

Timebase Source: TIM14

7.10. TIM2

Channel1: PWM Generation CH1

7.10.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**9-1 ***
Counter Mode	Up
Counter Period (AutoReload Register - 32 bits value)	**1000-1 ***
Internal Clock Division (CKD)	No Division
auto-reload preload	**Enable ***

Trigger Output (TRGO) Parameters:

Master/Slave Mode (MSM bit)	Disable (Trigger input effect not delayed)
Trigger Event Selection	Reset (UG bit from TIMx_EGR)

PWM Generation Channel 1:

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

7.11. TIM10

mode: Activated

7.11.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**180 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**10000 ***
Internal Clock Division (CKD)	No Division
auto-reload preload	**Enable ***

7.12. USART1

Mode: Asynchronous

7.12.1. 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**

8. System Configuration

8.1. 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	TEMP1
	PC1	ADC1_IN11	Analog mode	No pull-up and no pull-down	n/a	TEMP2
	PC2	ADC1_IN12	Analog mode	No pull-up and no pull-down	n/a	TEMP7
	PC3	ADC1_IN13	Analog mode	No pull-up and no pull-down	n/a	TEMP8
	PA0/WKUP	ADC1_IN0	Analog mode	No pull-up and no pull-down	n/a	TEMP3
	PA1	ADC1_IN1	Analog mode	No pull-up and no pull-down	n/a	TEMP4
	PA2	ADC1_IN2	Analog mode	No pull-up and no pull-down	n/a	TEMP5
	PA3	ADC1_IN3	Analog mode	No pull-up and no pull-down	n/a	TEMP6
	PA4	ADC1_IN4	Analog mode	No pull-up and no pull-down	n/a	AD_Temp
CAN1	PA11	CAN1_RX	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PA12	CAN1_TX	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
CAN2	PB5	CAN2_RX	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PB6	CAN2_TX	Alternate Function Push Pull	No pull-up and no pull-down	**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	
SPI2	PB13	SPI2_SCK	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	STM32_DAC_CLK
	PB15	SPI2_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	STM32_DAC_MOSI
SPI3	PC10	SPI3_SCK	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	FRAM_SCK
	PC11	SPI3_MISO	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	FRAM_MISO
	PC12	SPI3_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	FRAM_MOSI
SPI4	PE12	SPI4_SCK	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	STM32_ADC_CLK
	PE13	SPI4_MISO	Alternate Function Push Pull	No pull-up and no pull-down	**Very High**	STM32_ADC_DOUT

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 ***	STM32_ADC_DIN
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
TIM2	PA5	TIM2_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	Fan_PWM
USART1	PA9	USART1_TX	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PA10	USART1_RX	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
GPIO	PE2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_DAC_CS3
	PE3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_DAC_CS4
	PE4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_DAC_CS5
	PE5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_DAC_CS6
	PE6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_DAC_CS7
	PC13	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	V_STM32_ADC_CS8_2
	PC14/OSC32_IN	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	I_STM32_ADC_CS1_1
	PC15/OSC32_OUT	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	I_STM32_ADC_CS2_1
	PF0	GPIO_Output	**Output Open Drain ***	**Pull-up ***	**High ***	I2C2_SDA
	PF1	GPIO_Output	**Output Open Drain ***	**Pull-up ***	**High ***	I2C2_SCL
	PF2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_SSwA_P_1
	PF3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_SSwA_P_2
	PF4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_SSwA_P_3
	PF5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_SSwA_P_4
	PF6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_SSwA_P_5
	PF7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_SSwA_P_6
	PF8	GPIO_EXTI8	**External Interrupt Mode with Falling edge trigger detection**	No pull-up and no pull-down	**n/a**	V_STM32_ADC_DRDY5_1
	PF9	GPIO_EXTI9	**External Interrupt Mode with Falling edge trigger detection**	No pull-up and no pull-down	**n/a**	I_STM32_ADC_DRDY5_2
	PF10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_SSwA_P_7

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PA6	GPIO_EXTI6	**External Interrupt Mode with Falling edge trigger detection**	No pull-up and no pull-down	**n/a**	V_STM32_ADC_DRDY4_1
	PA7	GPIO_EXTI7	**External Interrupt Mode with Falling edge trigger detection**	No pull-up and no pull-down	**n/a**	I_STM32_ADC_DRDY4_2
	PC4	GPIO_EXTI4	**External Interrupt Mode with Falling edge trigger detection**	No pull-up and no pull-down	**n/a**	V_STM32_ADC_DRDY3_1
	PC5	GPIO_EXTI5	**External Interrupt Mode with Falling edge trigger detection**	No pull-up and no pull-down	**n/a**	I_STM32_ADC_DRDY3_2
	PB0	GPIO_EXTI0	**External Interrupt Mode with Falling edge trigger detection**	No pull-up and no pull-down	**n/a**	V_STM32_ADC_DRDY1_1
	PB1	GPIO_EXTI1	**External Interrupt Mode with Falling edge trigger detection**	No pull-up and no pull-down	**n/a**	I_STM32_ADC_DRDY1_2
	PF11	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_SSwA_P_8
	PF12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_SSwA_N_1
	PF13	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_SSwA_N_2
	PF14	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_SSwA_N_3
	PF15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_SSwA_N_4
	PG0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_N_1
	PG1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_N_2
	PE7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_DAC_CS8
	PE8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	FRAM_CS
	PE9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	GPIO_LED2
	PE10	GPIO_EXTI10	**External Interrupt Mode with Falling edge trigger detection**	No pull-up and no pull-down	n/a	V_STM32_ADC_DRDY6_1
	PE11	GPIO_EXTI11	**External Interrupt Mode with Falling edge trigger detection**	No pull-up and no pull-down	n/a	I_STM32_ADC_DRDY6_2
	PE15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	GPIO_LED1
	PB10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_SSwA_N_6
	PB11	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_SSwA_N_7

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PB12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_SSwA_N_8
	PB14	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	V_STM32_ADC_CS5_2
	PD8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_P_2
	PD9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_P_4
	PD10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_P_5
	PD11	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_P_6
	PD12	GPIO_EXTI12	**External Interrupt Mode with Falling edge trigger detection**	No pull-up and no pull-down	**n/a**	V_STM32_ADC_DRDY7_1
	PD13	GPIO_EXTI13	**External Interrupt Mode with Falling edge trigger detection**	No pull-up and no pull-down	**n/a**	I_STM32_ADC_DRDY7_2
	PD14	GPIO_Output	**Output Open Drain ***	No pull-up and no pull-down	**High ***	I2C3_SDA
	PD15	GPIO_Output	**Output Open Drain ***	No pull-up and no pull-down	**High ***	I2C3_SCL
	PG2	GPIO_EXTI2	**External Interrupt Mode with Falling edge trigger detection**	No pull-up and no pull-down	**n/a**	V_STM32_ADC_DRDY2_1
	PG3	GPIO_EXTI3	**External Interrupt Mode with Falling edge trigger detection**	No pull-up and no pull-down	**n/a**	I_STM32_ADC_DRDY2_2
	PG4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_N_3
	PG5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_N_4
	PG6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_N_5
	PG7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_N_6
	PG8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_N_7
	PC6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	V_STM32_ADC_CS1_2
	PC7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	V_STM32_ADC_CS2_2
	PC8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	V_STM32_ADC_CS4_2
	PC9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	V_STM32_ADC_CS3_2
	PA8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	SNOE1
	PA15	GPIO_Input	Input mode	**Pull-up ***	**n/a**	STM32_EXTI_INT
	PD0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	I_STM32_ADC_CS3_1
	PD1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	I_STM32_ADC_CS4_1
	PD2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	I_STM32_ADC_CS5_1
	PD3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	I_STM32_ADC_CS6_1

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PD4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	I_STM32_ADC_CS7_1
	PD5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	I_STM32_ADC_CS8_1
	PD6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_P_3
	PD7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_P_1
	PG9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_N_8
	PG10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	V_STM32_ADC_CS6_2
	PG11	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	V_STM32_ADC_CS7_2
	PG12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	LED0_R_STM32
	PG13	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	LED0_G_STM32
	PG14	GPIO_EXTI14	**External Interrupt Mode with Falling edge trigger detection**	No pull-up and no pull-down	**n/a**	V_STM32_ADC_DRDY8_1
	PG15	GPIO_EXTI15	**External Interrupt Mode with Falling edge trigger detection**	No pull-up and no pull-down	**n/a**	I_STM32_ADC_DRDY8_2
	PB3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_P_7
	PB4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_P_8
	PB7	GPIO_Output	**Output Open Drain ***	**Pull-up ***	**High ***	I2C1_SDA
	PB8	GPIO_Output	**Output Open Drain ***	**Pull-up ***	**High ***	I2C1_SCL
	PB9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_SSwA_N_5
	PE0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_DAC_CS1
	PE1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	STM32_DAC_CS2

8.2. DMA configuration

DMA request	Stream	Direction	Priority
ADC1	DMA2_Stream0	Peripheral To Memory	Low

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

8.3. NVIC configuration

8.3.1. NVIC

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
EXTI line0 interrupt	true	1	0
EXTI line1 interrupt	true	1	0
EXTI line2 interrupt	true	1	0
EXTI line3 interrupt	true	1	0
EXTI line4 interrupt	true	1	0
CAN1 RX0 interrupts	true	1	1
CAN1 RX1 interrupt	true	1	1
EXTI line[9:5] interrupts	true	1	0
TIM1 update interrupt and TIM10 global interrupt	true	0	1
USART1 global interrupt	true	1	2
EXTI line[15:10] interrupts	true	1	0
TIM8 trigger and commutation interrupts and TIM14 global interrupt	true	0	0
DMA2 stream0 global interrupt	true	0	0
CAN2 RX0 interrupts	true	1	2
CAN2 RX1 interrupt	true	1	2
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1, ADC2 and ADC3 global interrupts	unused		
CAN1 TX interrupts	unused		
CAN1 SCE interrupt	unused		
TIM2 global interrupt	unused		
SPI2 global interrupt	unused		
SPI3 global interrupt	unused		
CAN2 TX interrupts	unused		
CAN2 SCE interrupt	unused		
FPU global interrupt	unused		

Interrupt Table	Enable	Preenmption Priority	SubPriority
SPI4 global interrupt	unused		

8.3.2. NVIC Code generation

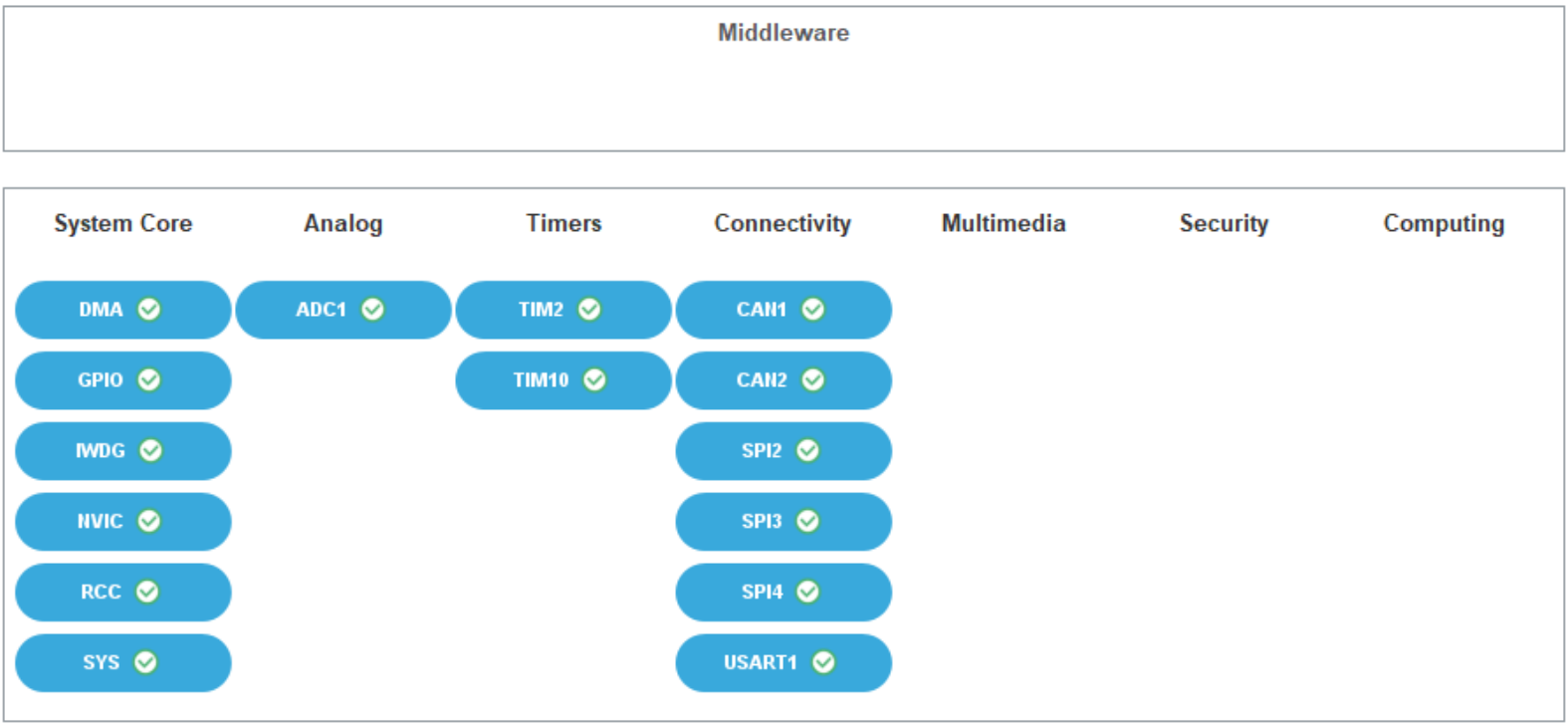
Enabled interrupt Table	Select for init sequence ordering	Generate IRQ handler	Call HAL handler
Non maskable interrupt	false	true	false
Hard fault interrupt	false	true	false
Memory management fault	false	true	false
Pre-fetch fault, memory access fault	false	true	false
Undefined instruction or illegal state	false	true	false
System service call via SWI instruction	false	true	false
Debug monitor	false	true	false
Pendable request for system service	false	true	false
System tick timer	false	true	true
EXTI line0 interrupt	false	true	true
EXTI line1 interrupt	false	true	true
EXTI line2 interrupt	false	true	true
EXTI line3 interrupt	false	true	true
EXTI line4 interrupt	false	true	true
CAN1 RX0 interrupts	false	true	true
CAN1 RX1 interrupt	false	true	true
EXTI line[9:5] interrupts	false	true	true
TIM1 update interrupt and TIM10 global interrupt	false	true	true
USART1 global interrupt	false	true	true
EXTI line[15:10] interrupts	false	true	true
TIM8 trigger and commutation interrupts and TIM14 global interrupt	false	true	true
DMA2 stream0 global interrupt	false	true	true
CAN2 RX0 interrupts	false	true	true
CAN2 RX1 interrupt	false	true	true

*** User modified value**

9. System Views

9.1. Category view

9.1.1. Current



10. Docs & Resources

Type	Link
Datasheet	http://www.st.com/resource/en/datasheet/DM00071990.pdf
Reference manual	http://www.st.com/resource/en/reference_manual/DM00031020.pdf
Programming manual	http://www.st.com/resource/en/programming_manual/DM00046982.pdf
Errata sheet	http://www.st.com/resource/en/errata_sheet/DM00068628.pdf
Application note	http://www.st.com/resource/en/application_note/CD00167594.pdf
Application note	http://www.st.com/resource/en/application_note/CD00211314.pdf
Application note	http://www.st.com/resource/en/application_note/CD00249778.pdf
Application note	http://www.st.com/resource/en/application_note/CD00259245.pdf
Application note	http://www.st.com/resource/en/application_note/CD00264321.pdf
Application note	http://www.st.com/resource/en/application_note/CD00264342.pdf
Application note	http://www.st.com/resource/en/application_note/CD00264379.pdf
Application note	http://www.st.com/resource/en/application_note/DM00024853.pdf
Application note	http://www.st.com/resource/en/application_note/DM00040802.pdf
Application note	http://www.st.com/resource/en/application_note/DM00040808.pdf
Application note	http://www.st.com/resource/en/application_note/DM00042534.pdf
Application note	http://www.st.com/resource/en/application_note/DM00046011.pdf
Application note	http://www.st.com/resource/en/application_note/DM00050879.pdf
Application note	http://www.st.com/resource/en/application_note/DM00072315.pdf
Application note	http://www.st.com/resource/en/application_note/DM00073742.pdf
Application note	http://www.st.com/resource/en/application_note/DM00073853.pdf
Application note	http://www.st.com/resource/en/application_note/DM00080497.pdf
Application note	http://www.st.com/resource/en/application_note/DM00081379.pdf
Application note	http://www.st.com/resource/en/application_note/DM00115714.pdf
Application note	http://www.st.com/resource/en/application_note/DM00123028.pdf
Application note	http://www.st.com/resource/en/application_note/DM00129215.pdf

Application note	http://www.st.com/resource/en/application_note/DM00154959.pdf
Application note	http://www.st.com/resource/en/application_note/DM00160482.pdf
Application note	http://www.st.com/resource/en/application_note/DM00161778.pdf
Application note	http://www.st.com/resource/en/application_note/DM00164538.pdf
Application note	http://www.st.com/resource/en/application_note/DM00172465.pdf
Application note	http://www.st.com/resource/en/application_note/DM00213525.pdf
Application note	http://www.st.com/resource/en/application_note/DM00220769.pdf
Application note	http://www.st.com/resource/en/application_note/DM00257177.pdf
Application note	http://www.st.com/resource/en/application_note/DM00272912.pdf
Application note	http://www.st.com/resource/en/application_note/DM00226326.pdf
Application note	http://www.st.com/resource/en/application_note/DM00236305.pdf
Application note	http://www.st.com/resource/en/application_note/DM00281138.pdf
Application note	http://www.st.com/resource/en/application_note/DM00296349.pdf
Application note	http://www.st.com/resource/en/application_note/DM00327191.pdf
Application note	http://www.st.com/resource/en/application_note/DM00287603.pdf
Application note	http://www.st.com/resource/en/application_note/DM00354244.pdf
Application note	http://www.st.com/resource/en/application_note/DM00373474.pdf
Application note	http://www.st.com/resource/en/application_note/DM00315319.pdf
Application note	http://www.st.com/resource/en/application_note/DM00380469.pdf
Application note	http://www.st.com/resource/en/application_note/DM00395696.pdf
Application note	http://www.st.com/resource/en/application_note/DM00431633.pdf
Application note	http://www.st.com/resource/en/application_note/DM00493651.pdf
Application note	http://www.st.com/resource/en/application_note/DM00536349.pdf
Application note	http://www.st.com/resource/en/application_note/DM00725181.pdf