

## 1. Description

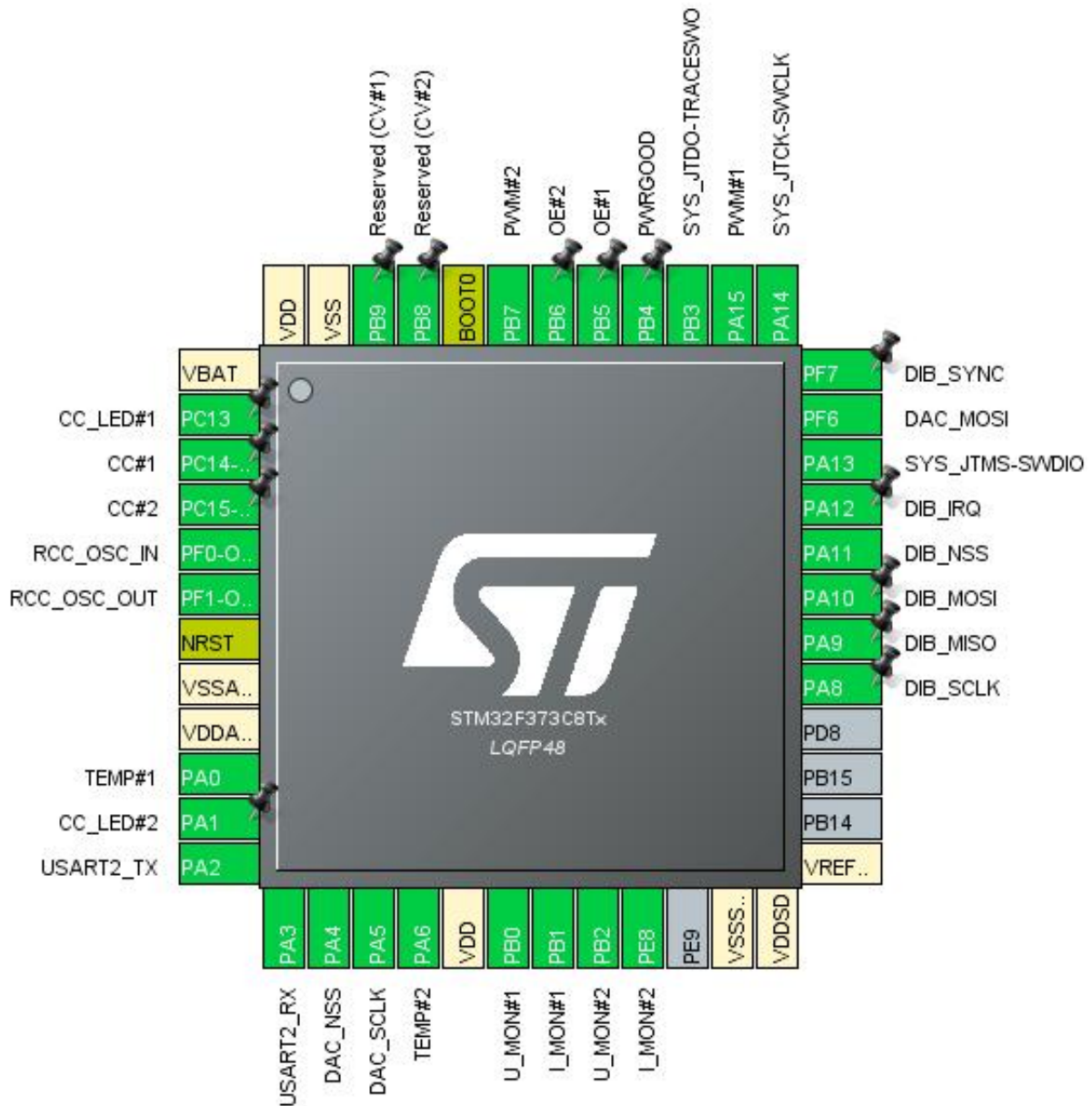
### 1.1. Project

Project Name	EEZ DIB DCM220 r1B2
Board Name	custom
Generated with:	STM32CubeMX 5.2.1
Date	06/25/2019

### 1.2. MCU

MCU Series	STM32F3
MCU Line	STM32F373
MCU name	STM32F373C8Tx
MCU Package	LQFP48
MCU Pin number	48

## 2. Pinout Configuration



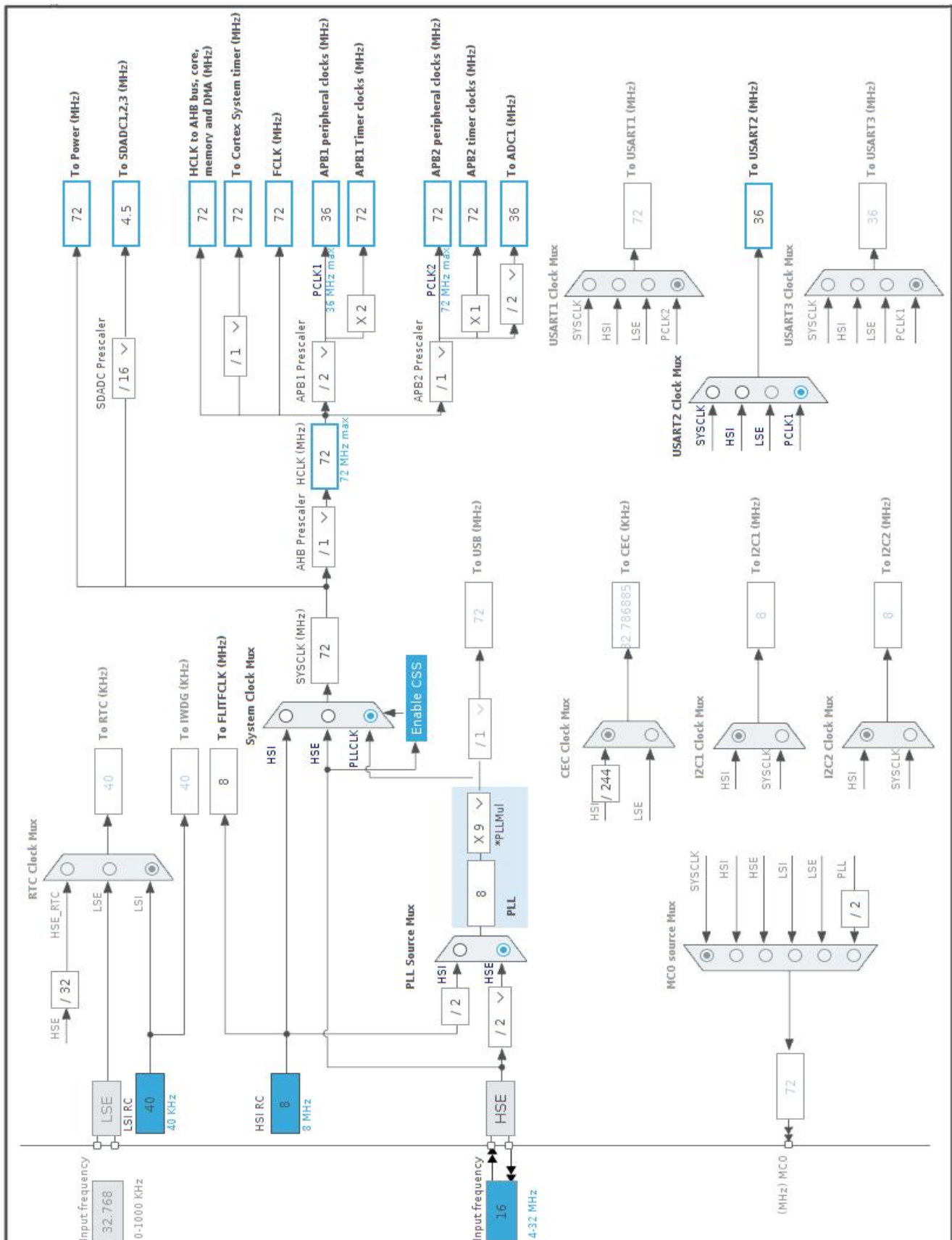
### 3. Pins Configuration

Pin Number LQFP48	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
2	PC13 *	I/O	GPIO_Output	CC_LED#1
3	PC14-OSC32_IN *	I/O	GPIO_Input	CC#1
4	PC15-OSC32_OUT *	I/O	GPIO_Input	CC#2
5	PF0-OSC_IN	I/O	RCC_OSC_IN	
6	PF1-OSC_OUT	I/O	RCC_OSC_OUT	
7	NRST	Reset		
8	VSSA/VREF-	Power		
9	VDDA/VREF+	Power		
10	PA0	I/O	ADC1_IN0	TEMP#1
11	PA1 *	I/O	GPIO_Output	CC_LED#2
12	PA2	I/O	USART2_TX	
13	PA3	I/O	USART2_RX	
14	PA4	I/O	SPI1_NSS	DAC_NSS
15	PA5	I/O	SPI1_SCK	DAC_SCLK
16	PA6	I/O	ADC1_IN6	TEMP#2
17	VDD	Power		
18	PB0	I/O	SDADC1_AIN6P	U_MON#1
19	PB1	I/O	SDADC1_AIN5P	I_MON#1
20	PB2	I/O	SDADC1_AIN4P	U_MON#2
21	PE8	I/O	SDADC1_AIN8P	I_MON#2
23	VSSSD/VREFSD-	Power		
24	VDDSD	Power		
25	VREFSD+	Power		
29	PA8	I/O	SPI2_SCK	DIB_SCLK
30	PA9	I/O	SPI2_MISO	DIB_MISO
31	PA10	I/O	SPI2_MOSI	DIB_MOSI
32	PA11	I/O	SPI2_NSS	DIB_NSS
33	PA12 *	I/O	GPIO_Output	DIB_IRQ
34	PA13	I/O	SYS_JTMS-SWDIO	
35	PF6	I/O	SPI1_MOSI	DAC_MOSI
36	PF7 *	I/O	GPIO_Input	DIB_SYNC
37	PA14	I/O	SYS_JTCK-SWCLK	
38	PA15	I/O	TIM2_CH1	PWM#1
39	PB3	I/O	SYS_JTDO-TRACESWO	
40	PB4 *	I/O	GPIO_Input	PWRGOOD

Pin Number LQFP48	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
41	PB5 *	I/O	GPIO_Output	OE#1
42	PB6 *	I/O	GPIO_Output	OE#2
43	PB7	I/O	TIM19_CH2	PWM#2
44	BOOT0	Boot		
45	PB8 *	I/O	GPIO_Input	Reserved (CV#2)
46	PB9 *	I/O	GPIO_Input	Reserved (CV#1)
47	VSS	Power		
48	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	EEZ DIB DCM220 r1B2
Project Folder	/home/denis/BACKUP/EEZ/Digital control/MCU/STM32/Projects/EEZ DIB
Toolchain / IDE	EWARM V8
Firmware Package Name and Version	STM32Cube FW_F3 V1.10.0

### 5.2. 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

## 6. Power Consumption Calculator report

### 6.1. Microcontroller Selection

Series	STM32F3
Line	STM32F373
MCU	STM32F373C8Tx
Datasheet	022691_Rev7

### 6.2. Parameter Selection

Temperature	25
Vdd	3.6

## 7. IPs and Middleware Configuration

### 7.1. ADC1

**mode: IN0**

**mode: IN6**

**mode: Temperature Sensor Channel**

#### 7.1.1. 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
<u>Rank</u>	1
Channel	<b>Channel Temperature Sensor *</b>
Sampling Time	1.5 Cycles

##### ADC\_Injected\_ConversionMode:

Number Of Conversions	0
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##### WatchDog:

Enable Analog WatchDog Mode	false
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### 7.2. RCC

**High Speed Clock (HSE): Crystal/Ceramic Resonator**

#### 7.2.1. Parameter Settings:

##### System Parameters:

VDD voltage (V)	3.3
Prefetch Buffer	Enabled
Flash Latency(WS)	2 WS (3 CPU cycle)

##### RCC Parameters:

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



### 7.3. SDADC1

**IN4: IN4-Single-Ended zero reference**

**IN5: IN5-Single-Ended zero reference**

**IN6: IN6-Single-Ended zero reference**

**IN8: IN8-Single-Ended zero reference**

**mode: Conversion Configuration 0**

#### 7.3.1. Parameter Settings:

##### General Settings:

Low Power Mode	None
Fast Conversion Mode	Disable
Slow Clock Mode	Disable
Reference Voltage	Forced externally using VREF pin

##### Conversion Configuration 0:

Input Mode	<b>Single-ended offset mode *</b>
Gain	equal to 1
Common Mode	SDADC VSSA
Offset	0

##### SDADC Regular Conversions Settings:

Enable Regular Conversion	Disable
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##### SDADC Injected Conversions Settings:

Enable Injected Conversion	Disable
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### 7.4. SPI1

**Mode: Half-Duplex Master**

**Hardware NSS Signal: Hardware NSS Output Signal**

#### 7.4.1. Parameter Settings:

##### Basic Parameters:

Frame Format	Motorola
Data Size	4 Bits
First Bit	MSB First

##### Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	<b>36.0 MBits/s *</b>

Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge
<b>Advanced Parameters:</b>	
CRC Calculation	Disabled
NSSP Mode	Enabled
NSS Signal Type	Output Hardware

## 7.5. SPI2

**Mode: Full-Duplex Slave**

**Hardware NSS Signal: Hardware NSS Input Signal**

### 7.5.1. Parameter Settings:

#### Basic Parameters:

Frame Format	Motorola
Data Size	4 Bits
First Bit	MSB First

#### Clock Parameters:

Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

#### Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Input Hardware

## 7.6. SYS

**Debug: Trace Asynchronous Sw**

**Timebase Source: SysTick**

## 7.7. TIM2

**Channel1: PWM Generation CH1**

### 7.7.1. Parameter Settings:

#### Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 32 bits value )	0
Internal Clock Division (CKD)	No Division

auto-reload preload                      Disable

#### 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  
Fast Mode                      Disable  
CH Polarity                      High

## 7.8. TIM19

### Channel2: PWM Generation CH2

#### 7.8.1. 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  
auto-reload preload                      Disable

##### 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 2:

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

## 7.9. USART2

### Mode: Asynchronous

#### 7.9.1. Parameter Settings:

##### Basic Parameters:

Baud Rate                      38400  
Word Length                      8 Bits (including Parity)  
Parity                      None

Stop Bits	1
<b>Advanced Parameters:</b>	
Data Direction	Receive and Transmit
Over Sampling	16 Samples
Single Sample	Disable
<b>Advanced Features:</b>	
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

## 8. System Configuration

### 8.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
ADC1	PA0	ADC1_IN0	Analog mode	No pull up pull down	n/a	TEMP#1
	PA6	ADC1_IN6	Analog mode	No pull up pull down	n/a	TEMP#2
RCC	PF0-OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PF1-OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
SDADC1	PB0	SDADC1_AIN6P	Analog mode	No pull up pull down	n/a	U_MON#1
	PB1	SDADC1_AIN5P	Analog mode	No pull up pull down	n/a	I_MON#1
	PB2	SDADC1_AIN4P	Analog mode	No pull up pull down	n/a	U_MON#2
	PE8	SDADC1_AIN8P	Analog mode	No pull up pull down	n/a	I_MON#2
SPI1	PA4	SPI1_NSS	Alternate Function Push Pull	No pull up pull down	High *	DAC_NSS
	PA5	SPI1_SCK	Alternate Function Push Pull	No pull up pull down	High *	DAC_SCLK
	PF6	SPI1_MOSI	Alternate Function Push Pull	No pull up pull down	High *	DAC_MOSI
SPI2	PA8	SPI2_SCK	Alternate Function Push Pull	No pull up pull down	High *	DIB_SCLK
	PA9	SPI2_MISO	Alternate Function Push Pull	No pull up pull down	High *	DIB_MISO
	PA10	SPI2_MOSI	Alternate Function Push Pull	No pull up pull down	High *	DIB_MOSI
	PA11	SPI2_NSS	Alternate Function Push Pull	No pull up pull down	High *	DIB_NSS
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
	PB3	SYS_JTDO-TRACESWO	n/a	n/a	n/a	
TIM2	PA15	TIM2_CH1	Alternate Function Push Pull	No pull up pull down	Low	PWM#1
TIM19	PB7	TIM19_CH2	Alternate Function Push Pull	No pull up pull down	Low	PWM#2
USART2	PA2	USART2_TX	Alternate Function Push Pull	No pull up pull down	High *	
	PA3	USART2_RX	Alternate Function Push Pull	No pull up pull down	High *	
GPIO	PC13	GPIO_Output	Output Push Pull	No pull up pull down	Low	CC_LED#1
	PC14-OSC32_IN	GPIO_Input	Input mode	No pull up pull down	n/a	CC#1
	PC15-OSC32_OUT	GPIO_Input	Input mode	No pull up pull down	n/a	CC#2
	PA1	GPIO_Output	Output Push Pull	No pull up pull down	Low	CC_LED#2
	PA12	GPIO_Output	Output Push Pull	No pull up pull down	Low	DIB_IRQ
	PF7	GPIO_Input	Input mode	No pull up pull down	n/a	DIB_SYNC

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PB4	GPIO_Input	Input mode	No pull up pull down	n/a	PWRGOOD
	PB5	GPIO_Output	Output Push Pull	No pull up pull down	Low	OE#1
	PB6	GPIO_Output	Output Push Pull	No pull up pull down	Low	OE#2
	PB8	GPIO_Input	Input mode	No pull up pull down	n/a	Reserved (CV#2)
	PB9	GPIO_Input	Input mode	No pull up pull down	n/a	Reserved (CV#1)

## 8.2. DMA configuration

nothing configured in DMA service

### 8.3. 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 line16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1 interrupt	unused		
TIM2 global interrupt	unused		
SPI1 global interrupt	unused		
SPI2 global interrupt	unused		
USART2 global interrupt / USART2 wake-up interrupt through EXTI line 26	unused		
SDADC1 global interrupt	unused		
TIM19 global interrupt	unused		
Floating point unit interrupt	unused		

\* User modified value

## ***9. Software Pack Report***