1. Description

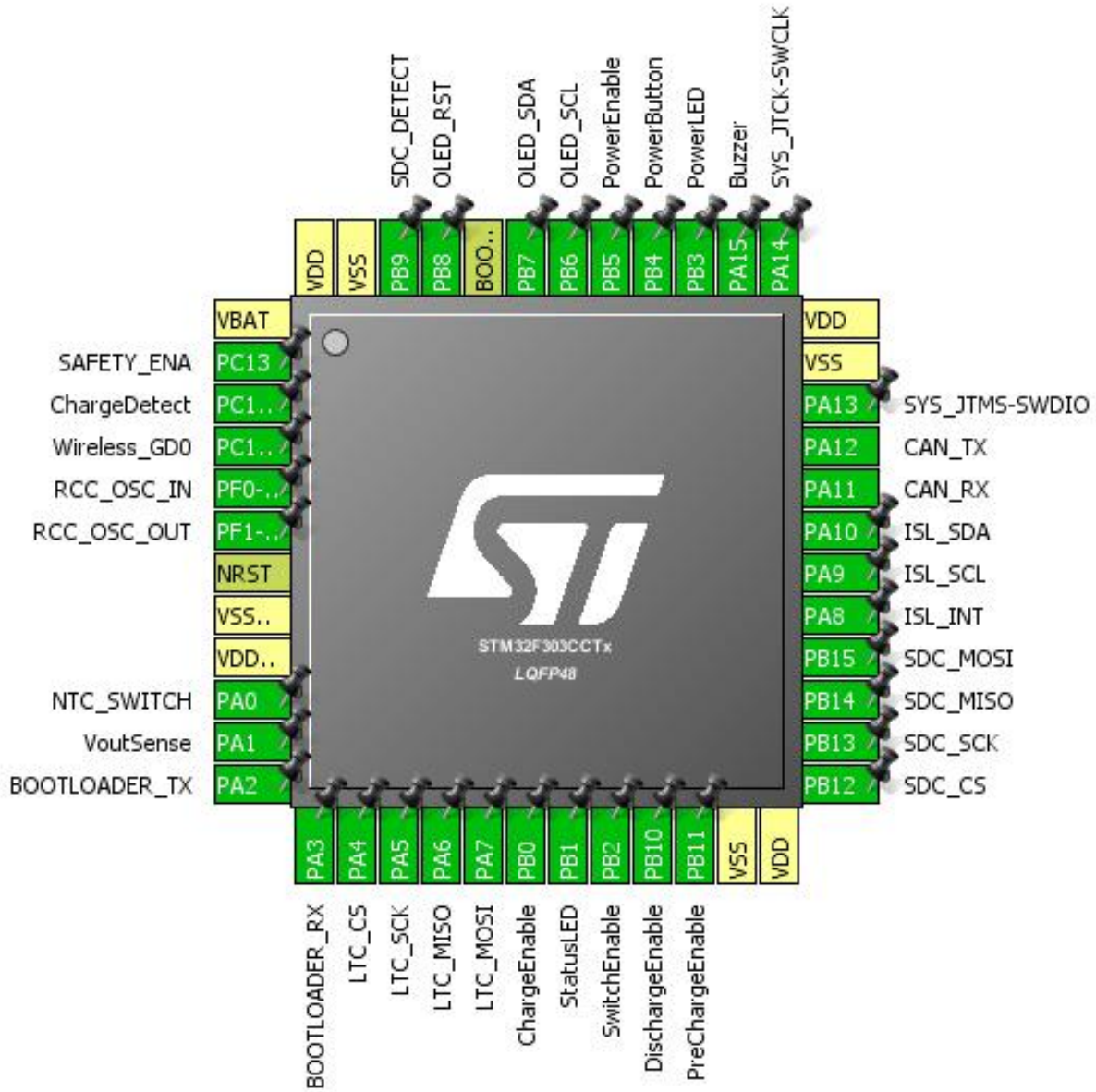
1.1. Project

Project Name	STM32F303CCTx
Board Name	STM32F303CCTx
Generated with:	STM32CubeMX 4.24.0
Date	03/20/2018

1.2. MCU

MCU Series	STM32F3
MCU Line	STM32F303
MCU name	STM32F303CCTx
MCU Package	LQFP48
MCU Pin number	48

2. Pinout Configuration



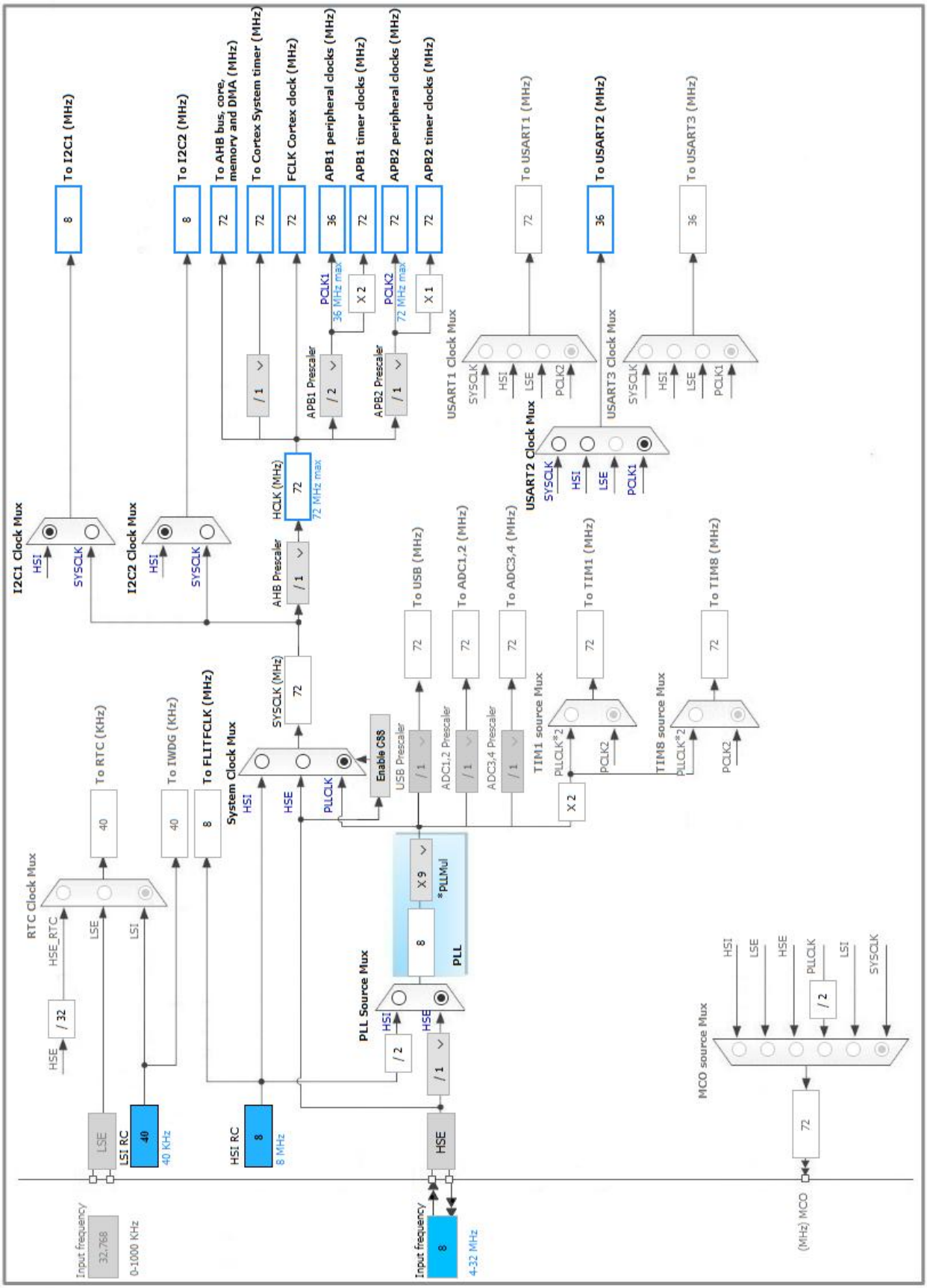
3. Pins Configuration

Pin Number LQFP48	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
2	PC13 *	I/O	GPIO_Output	SAFETY_ENA
3	PC14-OSC32_IN *	I/O	GPIO_Input	ChargeDetect
4	PC15-OSC32_OUT *	I/O	GPIO_Input	Wireless_GD0
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_IN1	NTC_SWITCH
11	PA1	I/O	ADC1_IN2	VoutSense
12	PA2	I/O	USART2_TX	BOOTLOADER_TX
13	PA3	I/O	USART2_RX	BOOTLOADER_RX
14	PA4 *	I/O	GPIO_Output	LTC_CS
15	PA5	I/O	SPI1_SCK	LTC_SCK
16	PA6	I/O	SPI1_MISO	LTC_MISO
17	PA7	I/O	SPI1_MOSI	LTC_MOSI
18	PB0 *	I/O	GPIO_Output	ChargeEnable
19	PB1 *	I/O	GPIO_Output	StatusLED
20	PB2 *	I/O	GPIO_Output	SwitchEnable
21	PB10 *	I/O	GPIO_Output	DischargeEnable
22	PB11 *	I/O	GPIO_Output	PreChargeEnable
23	VSS	Power		
24	VDD	Power		
25	PB12 *	I/O	GPIO_Output	SDC_CS
26	PB13	I/O	SPI2_SCK	SDC_SCK
27	PB14	I/O	SPI2_MISO	SDC_MISO
28	PB15	I/O	SPI2_MOSI	SDC_MOSI
29	PA8 *	I/O	GPIO_Input	ISL_INT
30	PA9	I/O	I2C2_SCL	ISL_SCL
31	PA10	I/O	I2C2_SDA	ISL_SDA
32	PA11	I/O	CAN_RX	
33	PA12	I/O	CAN_TX	
34	PA13	I/O	SYS_JTMS-SWDIO	
35	VSS	Power		
36	VDD	Power		

Pin Number LQFP48	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
37	PA14	I/O	SYS_JTCK-SWCLK	
38	PA15 *	I/O	GPIO_Output	Buzzer
39	PB3 *	I/O	GPIO_Output	PowerLED
40	PB4 *	I/O	GPIO_Input	PowerButton
41	PB5 *	I/O	GPIO_Output	PowerEnable
42	PB6	I/O	I2C1_SCL	OLED_SCL
43	PB7	I/O	I2C1_SDA	OLED_SDA
44	BOOT0	Boot		
45	PB8 *	I/O	GPIO_Output	OLED_RST
46	PB9 *	I/O	GPIO_Input	SDC_DETECT
47	VSS	Power		
48	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. ADC1

IN1: IN1 Single-ended

IN2: IN2 Single-ended

5.1.1. Parameter Settings:

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

Clock Prescaler	**Synchronous clock mode divided by 1 ***
Resolution	ADC 12-bit resolution
Data Alignment	Right alignment
Scan Conversion Mode	Enabled
Continuous Conversion Mode	**Enabled ***
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	Disabled
End Of Conversion Selection	**End of sequence of conversion ***
Overrun behaviour	Overrun data overwritten
Low Power Auto Wait	Disabled

ADC_Regular_ConversionMode:

Enable Regular Conversions	Enable
Number Of Conversion	**2 ***
External Trigger Conversion Edge	None
Rank	1
Channel	Channel 1
Sampling Time	**181.5 Cycles ***
Offset Number	No offset
Offset	0
Rank	**2 ***
Channel	**Channel 2 ***
Sampling Time	**181.5 Cycles ***
Offset Number	No offset
Offset	0

ADC_Injected_ConversionMode:

Enable Injected Conversions	**Disable ***

Analog Watchdog 1:

Enable Analog WatchDog1 Mode	false

Analog Watchdog 2:

Enable Analog WatchDog2 Mode	false

Analog Watchdog 3:

Enable Analog WatchDog3 Mode	false

5.2. CAN

mode: Mode

5.2.1. Parameter Settings:

Bit Timings Parameters:

Prescaler (for Time Quantum)	**9 ***
Time Quantum	**250.0 ***
Time Quanta in Bit Segment 1	**5 Times ***
Time Quanta in Bit Segment 2	**2 Times ***
Time for one Bit	**2000 ***
ReSynchronization Jump Width	1 Time

Basic Parameters:

Time Triggered Communication Mode	Disable
Automatic Bus-Off Management	Disable
Automatic Wake-Up Mode	Disable
No-Automatic Retransmission	Disable
Receive Fifo Locked Mode	Disable
Transmit Fifo Priority	Disable

Advanced Parameters:

Operating Mode	Normal

5.3. I2C1

I2C: I2C

5.3.1. Parameter Settings:

Timing configuration:

I2C Speed Mode	**Fast Mode ***
I2C Speed Frequency (KHz)	**200 ***
Rise Time (ns)	0
Fall Time (ns)	0
Coefficient of Digital Filter	0
Analog Filter	Enabled
Timing	0x2000090E

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

5.4. I2C2

I2C: I2C

5.4.1. Parameter Settings:

Timing configuration:

I2C Speed Mode	**Fast Mode ***
I2C Speed Frequency (KHz)	**200 ***
Rise Time (ns)	0
Fall Time (ns)	0
Coefficient of Digital Filter	0
Analog Filter	Enabled
Timing	0x2000090E

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

5.5. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

5.5.1. 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 Timout Value (ms)	100
LSE Startup Timout Value (ms)	5000

5.6. SPI1

Mode: Full-Duplex Master

5.6.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	**8 Bits ***
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	**256 ***
Baud Rate	**281.25 KBits/s ***
Clock Polarity (CPOL)	**High ***
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSSP Mode	Enabled
NSS Signal Type	Software

5.7. SPI2

Mode: Full-Duplex Master

5.7.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	4 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	**18.0 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSSP Mode	Enabled
NSS Signal Type	Software

5.8. SYS

Debug: Serial Wire

Timebase Source: SysTick

5.9. USART2

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
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
ADC1	PA0	ADC1_IN1	Analog mode	No pull up pull down	n/a	NTC_SWITCH
	PA1	ADC1_IN2	Analog mode	No pull up pull down	n/a	VoutSense
CAN	PA11	CAN_RX	Alternate Function Push Pull	No pull up pull down	**High ***	
	PA12	CAN_TX	Alternate Function Push Pull	No pull up pull down	**High ***	
I2C1	PB6	I2C1_SCL	Alternate Function Open Drain	Pull up	**High ***	OLED_SCL
	PB7	I2C1_SDA	Alternate Function Open Drain	Pull up	**High ***	OLED_SDA
I2C2	PA9	I2C2_SCL	Alternate Function Open Drain	Pull up	**High ***	ISL_SCL
	PA10	I2C2_SDA	Alternate Function Open Drain	Pull up	**High ***	ISL_SDA
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	
SPI1	PA5	SPI1_SCK	Alternate Function Push Pull	No pull up pull down	**High ***	LTC_SCK
	PA6	SPI1_MISO	Alternate Function Push Pull	No pull up pull down	**High ***	LTC_MISO
	PA7	SPI1_MOSI	Alternate Function Push Pull	No pull up pull down	**High ***	LTC_MOSI
SPI2	PB13	SPI2_SCK	Alternate Function Push Pull	No pull up pull down	**High ***	SDC_SCK
	PB14	SPI2_MISO	Alternate Function Push Pull	No pull up pull down	**High ***	SDC_MISO
	PB15	SPI2_MOSI	Alternate Function Push Pull	No pull up pull down	**High ***	SDC_MOSI
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
USART2	PA2	USART2_TX	Alternate Function Push Pull	Pull up	**High ***	BOOTLOADER_TX
	PA3	USART2_RX	Alternate Function Push Pull	Pull up	**High ***	BOOTLOADER_RX
GPIO	PC13	GPIO_Output	Output Push Pull	No pull up pull down	Low	SAFETY_ENA
	PC14-OSC32_IN	GPIO_Input	Input mode	No pull up pull down	n/a	ChargeDetect
	PC15-OSC32_OUT	GPIO_Input	Input mode	No pull up pull down	n/a	Wireless_GD0
	PA4	GPIO_Output	Output Push Pull	No pull up pull down	Low	LTC_CS

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PB0	GPIO_Output	Output Push Pull	No pull up pull down	Low	ChargeEnable
	PB1	GPIO_Output	Output Push Pull	No pull up pull down	Low	StatusLED
	PB2	GPIO_Output	Output Push Pull	No pull up pull down	Low	SwitchEnable
	PB10	GPIO_Output	Output Push Pull	No pull up pull down	Low	DischargeEnable
	PB11	GPIO_Output	Output Push Pull	No pull up pull down	Low	PreChargeEnable
	PB12	GPIO_Output	Output Push Pull	No pull up pull down	Low	SDC_CS
	PA8	GPIO_Input	Input mode	No pull up pull down	n/a	ISL_INT
	PA15	GPIO_Output	Output Push Pull	No pull up pull down	Low	Buzzer
	PB3	GPIO_Output	Output Push Pull	No pull up pull down	Low	PowerLED
	PB4	GPIO_Input	Input mode	No pull up pull down	n/a	PowerButton
	PB5	GPIO_Output	Output Push Pull	No pull up pull down	Low	PowerEnable
	PB8	GPIO_Output	Output Push Pull	No pull up pull down	Low	OLED_RST
	PB9	GPIO_Input	Input mode	No pull up pull down	n/a	SDC_DETECT

6.2. DMA configuration

DMA request	Stream	Direction	Priority
USART2_RX	DMA1_Channel6	Peripheral To Memory	**Medium ***

USART2_RX: DMA1_Channel6 DMA request Settings:

Mode:	**Circular ***
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
DMA1 channel6 global interrupt	true	0	0
PVD interrupt through EXTI line16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1 and ADC2 interrupts	unused		
USB high priority or CAN_TX interrupts	unused		
USB low priority or CAN_RX0 interrupts	unused		
CAN RX1 interrupt	unused		
CAN SCE interrupt	unused		
I2C1 event global interrupt / I2C1 wake-up interrupt through EXTI line 23	unused		
I2C1 error interrupt	unused		
I2C2 event global interrupt / I2C2 wake-up interrupt through EXTI line 24	unused		
I2C2 error interrupt	unused		
SPI1 global interrupt	unused		
SPI2 global interrupt	unused		
USART2 global interrupt / USART2 wake-up interrupt through EXTI line 26	unused		
Floating point unit interrupt	unused		

*** User modified value**

7. Software Project

7.1. Project Settings

Name	Value
Project Name	STM32F303CCTx
Project Folder	C:\Projecten\DieBieMS\GitHub\Firmware\DieBieMS\CubeMX
Toolchain / IDE	TrueSTUDIO
Firmware Package Name and Version	STM32Cube FW_F3 V1.5.0

7.2. 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	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

8. Software Pack Report