

## ***1. Description***

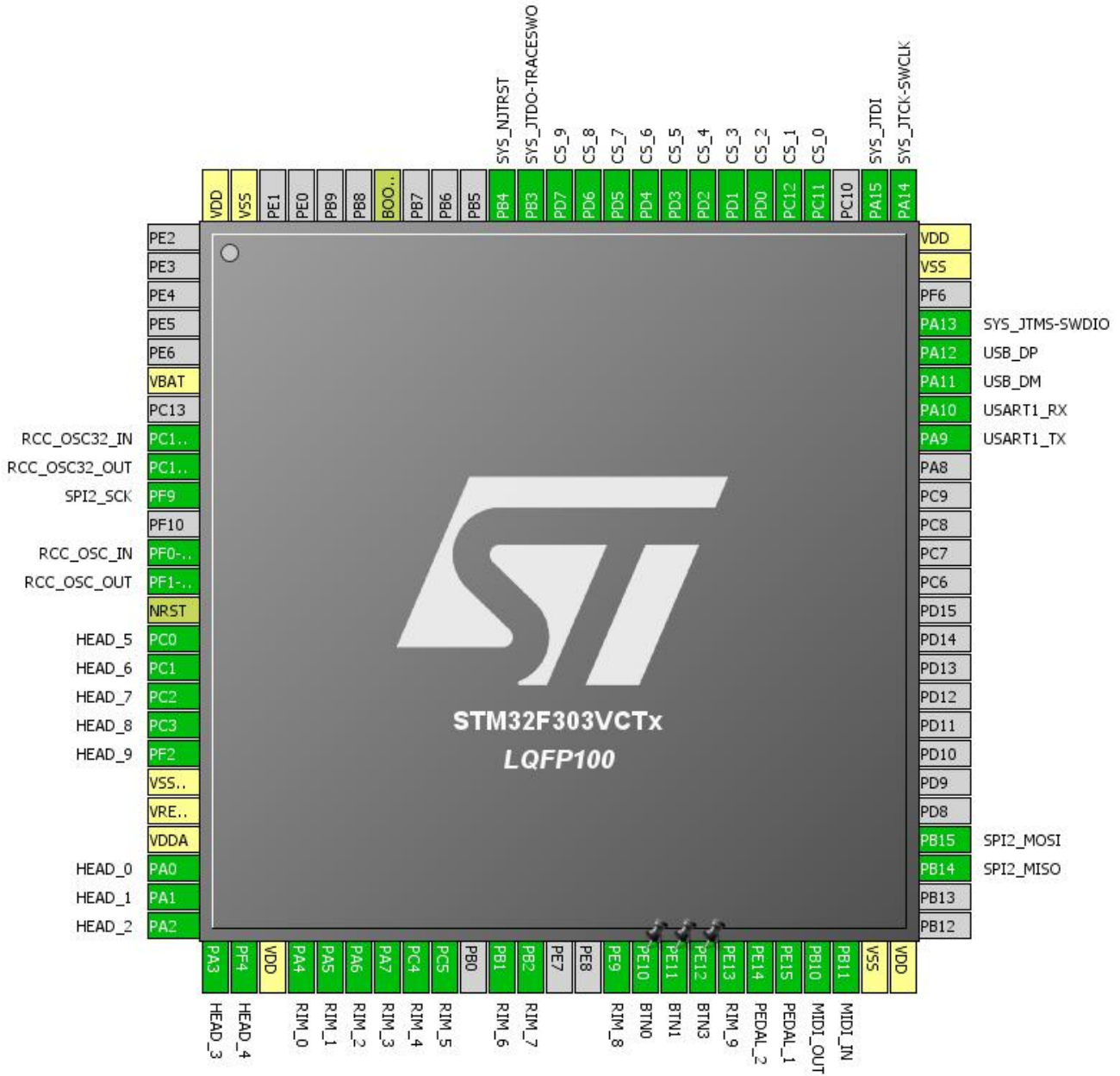
### 1.1. Project

|                 |                   |
|-----------------|-------------------|
| Project Name    | Voltdrum_Firmware |
| Generated with: | STM32CubeMX 4.6.0 |
| Date            | 05/27/2015        |

### 1.2. MCU

|                |               |
|----------------|---------------|
| MCU Serie      | STM32F3       |
| MCU Line       | STM32F303     |
| MCU name       | STM32F303VCTx |
| MCU Package    | LQFP100       |
| MCU Pin number | 100           |

## 2. Pinout Configuration



### 3. IPs and Middlewares Configuration

| IP   | Mode   | Fonction   | Pin        |
|------|--|------------|------------|
| ADC1 | IN1:<br>IN1 Single-ended                             | ADC1_IN1   | PA0        |
|      | IN2:<br>IN2 Single-ended                             | ADC1_IN2   | PA1        |
|      | IN3:<br>IN3 Single-ended                             | ADC1_IN3   | PA2        |
|      | IN4:<br>IN4 Single-ended                             | ADC1_IN4   | PA3        |
|      | IN5:<br>IN5 Single-ended                             | ADC1_IN5   | PF4        |
|      | IN6:<br>IN6 Single-ended                             | ADC1_IN6   | PC0        |
|      | IN7:<br>IN7 Single-ended                             | ADC1_IN7   | PC1        |
|      | IN8:<br>IN8 Single-ended                             | ADC1_IN8   | PC2        |
|      | IN9:<br>IN9 Single-ended                             | ADC1_IN9   | PC3        |
|      | IN10   | ADC1_IN10  | PF2        |
| ADC2 | IN1:<br>IN1 Single-ended                             | ADC2_IN1   | PA4        |
|      | IN2:<br>IN2 Single-ended                             | ADC2_IN2   | PA5        |
|      | IN3:<br>IN3 Single-ended                             | ADC2_IN3   | PA6        |
|      | IN4:<br>IN4 Single-ended                             | ADC2_IN4   | PA7        |
|      | IN5:<br>IN5 Single-ended                             | ADC2_IN5   | PC4        |
|      | IN11:<br>IN11 Single-ended                           | ADC2_IN11  | PC5        |
|      | IN12   | ADC2_IN12  | PB2        |
| ADC3 | IN1:<br>IN1 Single-ended                             | ADC3_IN1   | PB1        |
|      | IN2:<br>IN2 Single-ended                             | ADC3_IN2   | PE9        |
|      | IN3  | ADC3_IN3   | PE13       |
| ADC4 | IN1:<br>IN1 Single-ended                             | ADC4_IN1   | PE14       |
|      | IN2:<br>IN2 Single-ended                             | ADC4_IN2   | PE15       |
|      | High Speed Clock (HSE):<br>Crystal/Ceramic Resonator | RCC_OSC_IN | PF0-OSC_IN |
|      |  |            |            |

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| IP     | Mode   | Fonction          | Pin            |
|--------|--|-------------------|----------------|
| RCC    | Low Speed Clock (LSE) :<br>Crystal/Ceramic Resonator | RCC_OSC_OUT       | PF1-OSC_OUT    |
|        |  | RCC_OSC32_IN      | PC14-OSC32_IN  |
|        |  | RCC_OSC32_OUT     | PC15-OSC32_OUT |
| SPI2   | Mode:<br>Full-Duplex Master                          | SPI2_MISO         | PB14           |
|        |  | SPI2_MOSI         | PB15           |
|        |  | SPI2_SCK          | PF9            |
| SYS    | Debug:<br>JTAG (5 pins)                              | SYS_JTCK-SWCLK    | PA14           |
|        |  | SYS_JTDI          | PA15           |
|        |  | SYS_JTDO-TRACESWO | PB3            |
|        |  | SYS_JTMS-SWDIO    | PA13           |
|        |  | SYS_NJTRST        | PB4            |
| TIM1   | Clock Source :<br>Internal Clock                     | N/A               | N/A            |
| TIM2   | Clock Source :<br>Internal Clock                     | N/A               | N/A            |
| TIM3   | Clock Source :<br>Internal Clock                     | N/A               | N/A            |
| USART1 | Mode:<br>Asynchronous                                | USART1_RX         | PA10           |
|        |  | USART1_TX         | PA9            |
| USART3 | Mode:<br>Asynchronous                                | USART3_RX         | PB11           |
|        |  | USART3_TX         | PB10           |
| USB    | Device (FS)  | USB_DM            | PA11           |
|        |  | USB_DP            | PA12           |

| MiddleWare | Mode                                   |
|------------|--|
| USB_DEVICE | Class For FS IP:<br>Audio Device Class |

## 4. Pins Configuration

| Pin            | Pos | Function(s)    | Label    |
|----------------|-----|----------------|----------|
| PC14-OSC32_IN  | 8   | RCC_OSC32_IN   |          |
| PC15-OSC32_OUT | 9   | RCC_OSC32_OUT  |          |
| PF9            | 10  | SPI2_SCK       |          |
| PF0-OSC_IN     | 12  | RCC_OSC_IN     |          |
| PF1-OSC_OUT    | 13  | RCC_OSC_OUT    |          |
| PC0            | 15  | ADC1_IN6       | HEAD_5   |
| PC1            | 16  | ADC1_IN7       | HEAD_6   |
| PC2            | 17  | ADC1_IN8       | HEAD_7   |
| PC3            | 18  | ADC1_IN9       | HEAD_8   |
| PF2            | 19  | ADC1_IN10      | HEAD_9   |
| PA0            | 23  | ADC1_IN1       | HEAD_0   |
| PA1            | 24  | ADC1_IN2       | HEAD_1   |
| PA2            | 25  | ADC1_IN3       | HEAD_2   |
| PA3            | 26  | ADC1_IN4       | HEAD_3   |
| PF4            | 27  | ADC1_IN5       | HEAD_4   |
| PA4            | 29  | ADC2_IN1       | RIM_0    |
| PA5            | 30  | ADC2_IN2       | RIM_1    |
| PA6            | 31  | ADC2_IN3       | RIM_2    |
| PA7            | 32  | ADC2_IN4       | RIM_3    |
| PC4            | 33  | ADC2_IN5       | RIM_4    |
| PC5            | 34  | ADC2_IN11      | RIM_5    |
| PB1            | 36  | ADC3_IN1       | RIM_6    |
| PB2            | 37  | ADC2_IN12      | RIM_7    |
| PE9            | 40  | ADC3_IN2       | RIM_8    |
| PE10           | 41  | GPIO_EXTI10    | BTN0     |
| PE11           | 42  | GPIO_EXTI11    | BTN1     |
| PE12 *         | 43  | GPIO_Output    | BTN3     |
| PE13           | 44  | ADC3_IN3       | RIM_9    |
| PE14           | 45  | ADC4_IN1       | PEDAL_2  |
| PE15           | 46  | ADC4_IN2       | PEDAL_1  |
| PB10           | 47  | USART3_TX      | MIDI_OUT |
| PB11           | 48  | USART3_RX      | MIDI_IN  |
| PB14           | 53  | SPI2_MISO      |          |
| PB15           | 54  | SPI2_MOSI      |          |
| PA9            | 68  | USART1_TX      |          |
| PA10           | 69  | USART1_RX      |          |
| PA11           | 70  | USB_DM         |          |
| PA12           | 71  | USB_DP         |          |
| PA13           | 72  | SYS_JTMS-SWDIO |          |

| Pin    | Pos | Function(s)       | Label |
|--------|-----|-------------------|-------|
| PA14   | 76  | SYS_JTCK-SWCLK    |       |
| PA15   | 77  | SYS_JTDI          |       |
| PC11 * | 79  | GPIO_Output       | CS_0  |
| PC12 * | 80  | GPIO_Output       | CS_1  |
| PD0 *  | 81  | GPIO_Output       | CS_2  |
| PD1 *  | 82  | GPIO_Output       | CS_3  |
| PD2 *  | 83  | GPIO_Output       | CS_4  |
| PD3 *  | 84  | GPIO_Output       | CS_5  |
| PD4 *  | 85  | GPIO_Output       | CS_6  |
| PD5 *  | 86  | GPIO_Output       | CS_7  |
| PD6 *  | 87  | GPIO_Output       | CS_8  |
| PD7 *  | 88  | GPIO_Output       | CS_9  |
| PB3    | 89  | SYS_JTDO-TRACESWO |       |
| PB4    | 90  | SYS_NJTRST        |       |

\* The pin is affected with an I/O function

## **5. Power Plugin report**

### 5.1. Microcontroller Selection

|           |               |
|-----------|---------------|
| Serie     | STM32F3       |
| Line      | STM32F303     |
| MCU       | STM32F303VCTx |
| Datasheet | 023353_Rev8   |

### 5.2. Parameter Selection

|             |     |
|-------------|-----|
| Temperature | 25  |
| Vdd         | 3.6 |

## 6. Software Project

### 6.1. Project Settings

| Name                              | Value   |
|-----------------------------------|---|
| Project Name                      | Voltdrum_Firmware   |
| Project Folder                    | E:\bachelor thesis\drumtrigger_firmware\Voltdrum_Firmware |
| Toolchain / IDE                   | TrueSTUDIO 4.3.1  |
| Firmware Package Name and Version | STM32Cube FW_F3 V1.1.1                                    |

### 6.2. 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   | Yes                                   |
| Backup previously generated files 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                                    |

### 6.3. Toolchains Settings

| Name                   | Value               |
|------------------------|---------------------|
| Compiler Optimizations | Balanced Size/Speed |