

## 1. Description

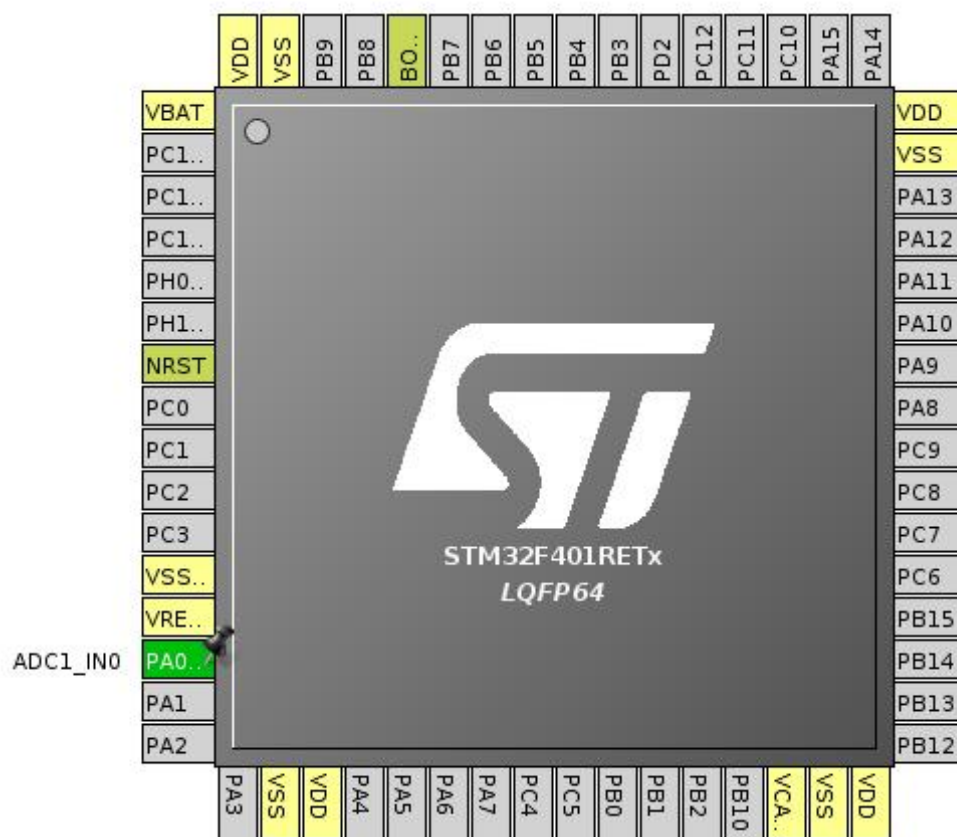
### 1.1. Project

|                 |                    |
|-----------------|--------------------|
| Project Name    | ADC_DMA            |
| Board Name      | ADC_DMA            |
| Generated with: | STM32CubeMX 4.16.0 |
| Date            | 08/05/2016         |

### 1.2. MCU

|                |               |
|----------------|---------------|
| MCU Series     | STM32F4       |
| MCU Line       | STM32F401     |
| MCU name       | STM32F401RETx |
| MCU Package    | LQFP64        |
| MCU Pin number | 64            |

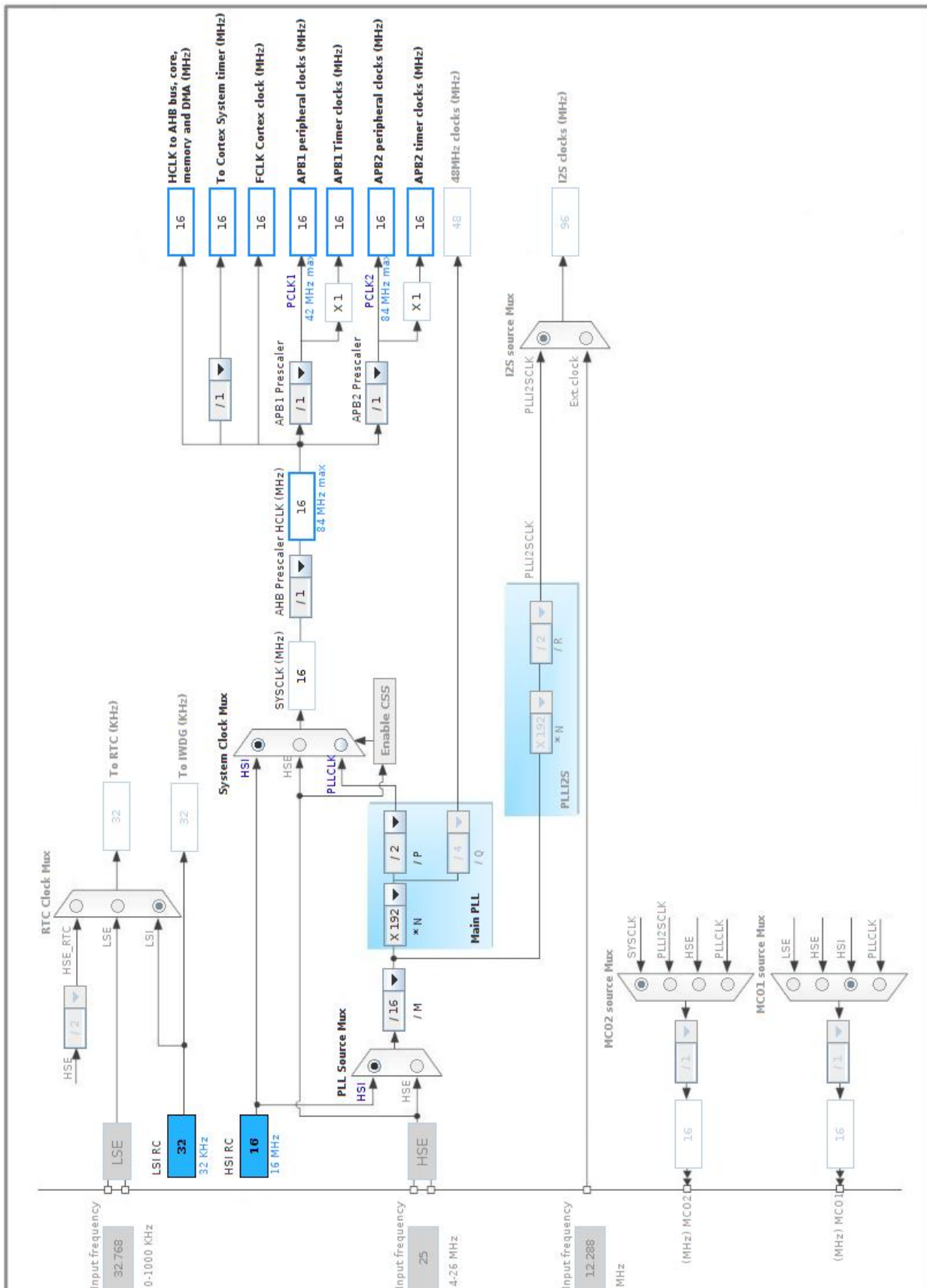
## 2. Pinout Configuration



### 3. Pins Configuration

| Pin Number<br>LQFP64 | Pin Name<br>(function after<br>reset) | Pin Type | Alternate<br>Function(s) | Label |
|----------------------|---------------------------------------|----------|--------------------------|-------|
| 1                    | VBAT                                  | Power    |                          |       |
| 7                    | NRST                                  | Reset    |                          |       |
| 12                   | VSSA/VREF-                            | Power    |                          |       |
| 13                   | VREF+                                 | Power    |                          |       |
| 14                   | PA0-WKUP                              | I/O      | ADC1_IN0                 |       |
| 18                   | VSS                                   | Power    |                          |       |
| 19                   | VDD                                   | Power    |                          |       |
| 30                   | VCAP1                                 | Power    |                          |       |
| 31                   | VSS                                   | Power    |                          |       |
| 32                   | VDD                                   | Power    |                          |       |
| 47                   | VSS                                   | Power    |                          |       |
| 48                   | VDD                                   | Power    |                          |       |
| 60                   | BOOT0                                 | Boot     |                          |       |
| 63                   | VSS                                   | Power    |                          |       |
| 64                   | VDD                                   | Power    |                          |       |

## 4. Clock Tree Configuration



## 5. IPs and Middleware Configuration

### 5.1. ADC1

mode: IN0

#### 5.1.1. Parameter Settings:

##### ADC\_Settings:

|                               |  |
|-------------------------------|--|
| Clock Prescaler               | PCLK2 divided by 2                               |
| Resolution                    | 12 bits (15 ADC Clock cycles)                    |
| Data Alignment                | Right alignment                                  |
| Scan Conversion Mode          | Disabled   |
| Continuous Conversion Mode    | <b>Enabled *</b>                                 |
| Discontinuous Conversion Mode | Disabled   |
| DMA Continuous Requests       | <b>Enabled *</b>                                 |
| End Of Conversion Selection   | EOC flag at the end of single channel conversion |

##### ADC\_Regular\_ConversionMode:

|                                  |                    |
|----------------------------------|--------------------|
| Number Of Conversion             | 1                  |
| External Trigger Conversion Edge | None               |
| <u>Rank</u>                      | 1                  |
| Channel                          | Channel 0          |
| Sampling Time                    | <b>28 Cycles *</b> |

##### ADC\_Injected\_ConversionMode:

|                       |   |
|-----------------------|---|
| Number Of Conversions | 0 |
|-----------------------|---|

##### WatchDog:

|                             |       |
|-----------------------------|-------|
| Enable Analog WatchDog Mode | false |
|-----------------------------|-------|

### 5.2. SYS

Timebase Source: SysTick

\* User modified value

## 6. System Configuration

### 6.1. GPIO configuration

| IP   | Pin      | Signal   | GPIO mode   | GPIO pull/up pull<br>down   | Max<br>Speed | User Label |
|------|----------|----------|-------------|-----------------------------|--------------|------------|
| ADC1 | PA0-WKUP | ADC1_IN0 | Analog mode | No pull-up and no pull-down | n/a          |            |

## 6.2. DMA configuration

| DMA request | Stream       | Direction            | Priority |
|-------------|--------------|----------------------|----------|
| ADC1        | DMA2_Stream0 | Peripheral To Memory | Low      |

### ADC1: DMA2\_Stream0 DMA request Settings:

Mode: **Circular \***  
Use fifo: Disable  
Peripheral Increment: Disable  
Memory Increment: **Enable \***  
Peripheral Data Width: Half Word  
Memory Data Width: Half Word

### 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           |
| DMA2 stream0 global interrupt           | true   | 0                    | 0           |
| PVD interrupt through EXTI line 16      | unused |                      |             |
| Flash global interrupt                  | unused |                      |             |
| RCC global interrupt                    | unused |                      |             |
| ADC1 global interrupt                   | unused |                      |             |
| FPU global interrupt                    | unused |                      |             |

\* User modified value



## ***7. Power Consumption Calculator report***

### 7.1. Microcontroller Selection

|           |               |
|-----------|---------------|
| Series    | STM32F4       |
| Line      | STM32F401     |
| MCU       | STM32F401RETx |
| Datasheet | 025644_Rev3   |

### 7.2. Parameter Selection

|             |      |
|-------------|------|
| Temperature | 25   |
| Vdd         | null |

## 8. Software Project

### 8.1. Project Settings

| Name                              | Value                              |
|-----------------------------------|------------------------------------|
| Project Name                      | ADC_DMA                            |
| Project Folder                    | /home/jose/workspaceCortex/ADC_DMA |
| Toolchain / IDE                   | SW4STM32                           |
| Firmware Package Name and Version | STM32Cube FW_F4 V1.13.0            |

### 8.2. 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                                    |