

## 1. Description

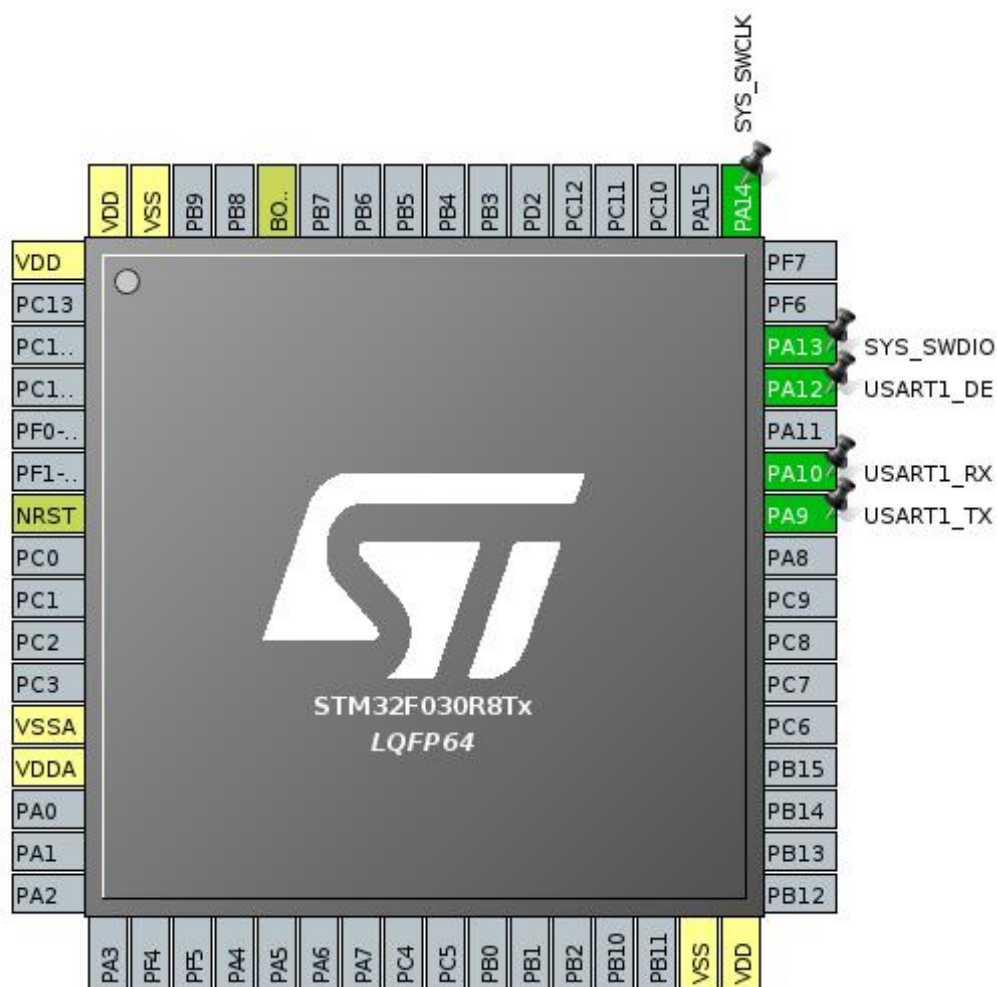
### 1.1. Project

|                 |                   |
|-----------------|-------------------|
| Project Name    | project           |
| Board Name      | custom            |
| Generated with: | STM32CubeMX 5.0.1 |
| Date            | 02/17/2019        |

### 1.2. MCU

|                |                      |
|----------------|----------------------|
| MCU Series     | STM32F0              |
| MCU Line       | STM32F0x0 Value Line |
| MCU name       | STM32F030R8Tx        |
| MCU Package    | LQFP64               |
| MCU Pin number | 64                   |

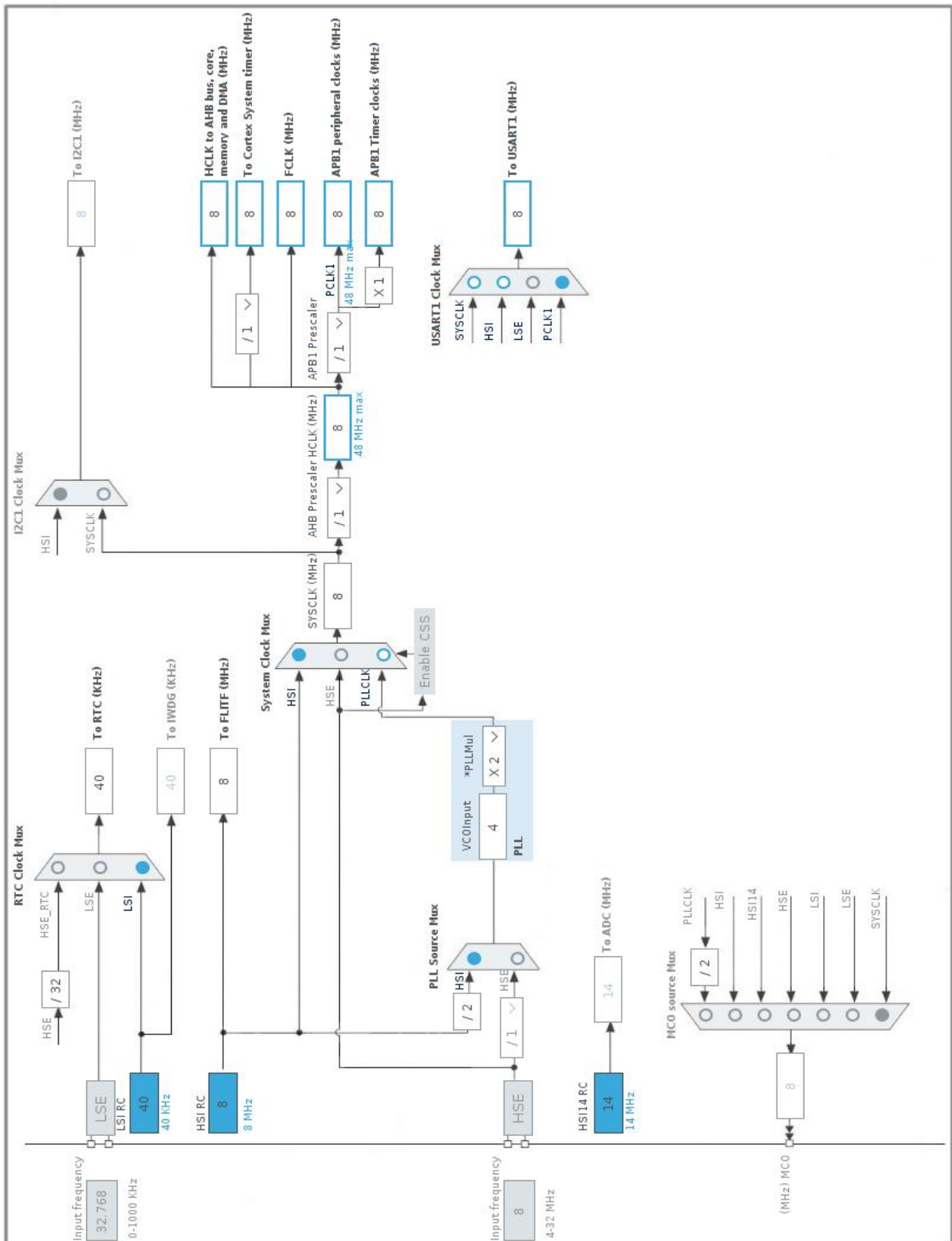
## 2. Pinout Configuration



### 3. Pins Configuration

| Pin Number<br>LQFP64 | Pin Name<br>(function after<br>reset) | Pin Type | Alternate<br>Function(s) | Label |
|----------------------|---------------------------------------|----------|--------------------------|-------|
| 1                    | VDD                                   | Power    |                          |       |
| 7                    | NRST                                  | Reset    |                          |       |
| 12                   | VSSA                                  | Power    |                          |       |
| 13                   | VDDA                                  | Power    |                          |       |
| 31                   | VSS                                   | Power    |                          |       |
| 32                   | VDD                                   | Power    |                          |       |
| 42                   | PA9                                   | I/O      | USART1_TX                |       |
| 43                   | PA10                                  | I/O      | USART1_RX                |       |
| 45                   | PA12                                  | I/O      | USART1_DE                |       |
| 46                   | PA13                                  | I/O      | SYS_SWDIO                |       |
| 49                   | PA14                                  | I/O      | SYS_SWCLK                |       |
| 60                   | BOOT0                                 | Boot     |                          |       |
| 63                   | VSS                                   | Power    |                          |       |
| 64                   | VDD                                   | Power    |                          |       |

## 4. Clock Tree Configuration



## 5. Software Project

### 5.1. Project Settings

| Name                              | Value                                       |
|-----------------------------------|---------------------------------------------|
| Project Name                      | project                                     |
| Project Folder                    | /home/jmurray/Git/STM32_Experiments/project |
| Toolchain / IDE                   | Makefile                                    |
| Firmware Package Name and Version | STM32Cube FW_F0 V1.9.0                      |

### 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    | STM32F0              |
| Line      | STM32F0x0 Value Line |
| MCU       | STM32F030R8Tx        |
| Datasheet | 024849_Rev2          |

### 6.2. Parameter Selection

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

## 7. IPs and Middleware Configuration

### 7.1. CRC

**mode: Activated**

#### 7.1.1. Parameter Settings:

##### Basic Parameters:

|                          |        |
|--------------------------|--------|
| Default Polynomial State | Enable |
| Default Init Value State | Enable |

##### Advanced Parameters:

|                            |         |
|----------------------------|---------|
| Input Data Inversion Mode  | None    |
| Output Data Inversion Mode | Disable |
| Input Data Format          | Bytes   |

### 7.2. RTC

**mode: Activate Clock Source**

#### 7.2.1. Parameter Settings:

##### General:

|                               |               |
|-------------------------------|---------------|
| Hour Format                   | Hourformat 24 |
| Asynchronous Predivider value | 127           |
| Synchronous Predivider value  | 255           |

### 7.3. SYS

**mode: Debug Serial Wire**

**Timebase Source: SysTick**

### 7.4. USART1

**Mode: Asynchronous**

**mode: Hardware Flow Control (RS485)**

#### 7.4.1. Parameter Settings:

##### Basic Parameters:

|             |                             |
|-------------|-----------------------------|
| Baud Rate   | 9600 *                      |
| Word Length | 9 Bits (including Parity) * |

|                               |                        |
|-------------------------------|------------------------|
| Parity                        | <b>Even *</b>          |
| Stop Bits                     | 1                      |
| <b>Advanced Parameters:</b>   |                        |
| Data Direction                | <b>Transmit Only *</b> |
| Over Sampling                 | 16 Samples             |
| Single Sample                 | Disable                |
| Polarity                      | High                   |
| Assertion Time                | 0                      |
| Deassertion Time              | 0                      |
| <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 |
|--------|------|-----------|------------------------------|-----------------------------|---------------|------------|
| SYS    | PA13 | SYS_SWDIO | n/a                          | n/a                         | n/a           |            |
|        | PA14 | SYS_SWCLK | n/a                          | n/a                         | n/a           |            |
| USART1 | PA9  | USART1_TX | Alternate Function Push Pull | No pull-up and no pull-down | <b>High *</b> |            |
|        | PA10 | USART1_RX | Alternate Function Push Pull | No pull-up and no pull-down | <b>High *</b> |            |
|        | PA12 | USART1_DE | Alternate Function Push Pull | No pull-up and no pull-down | <b>High *</b> |            |

## 8.2. DMA configuration

| DMA request | Stream        | Direction            | Priority |
|-------------|---------------|----------------------|----------|
| USART1_RX   | DMA1_Channel3 | Peripheral To Memory | Low      |
| USART1_TX   | DMA1_Channel2 | Memory To Peripheral | Low      |

### USART1\_RX: DMA1\_Channel3 DMA request Settings:

Mode: **Circular \***  
Peripheral Increment: Disable  
Memory Increment: Disable  
Peripheral Data Width: Byte  
Memory Data Width: Byte

### USART1\_TX: DMA1\_Channel2 DMA request Settings:

Mode: Normal  
Peripheral Increment: Disable  
Memory Increment: **Enable \***  
Peripheral Data Width: Byte  
Memory Data Width: Byte

### 8.3. NVIC configuration

| Interrupt Table                         | Enable | Preenmption Priority | SubPriority |
|-----------------------------------------|--------|----------------------|-------------|
| Non maskable interrupt                  | true   | 0                    | 0           |
| Hard fault interrupt                    | true   | 0                    | 0           |
| System service call via SWI instruction | true   | 0                    | 0           |
| Pendable request for system service     | true   | 0                    | 0           |
| System tick timer                       | true   | 0                    | 0           |
| DMA1 channel 2 and 3 interrupts         | true   | 0                    | 0           |
| Flash global interrupt                  | unused |                      |             |
| RCC global interrupt                    | unused |                      |             |
| USART1 global interrupt                 | unused |                      |             |

\* User modified value

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