

1. Description

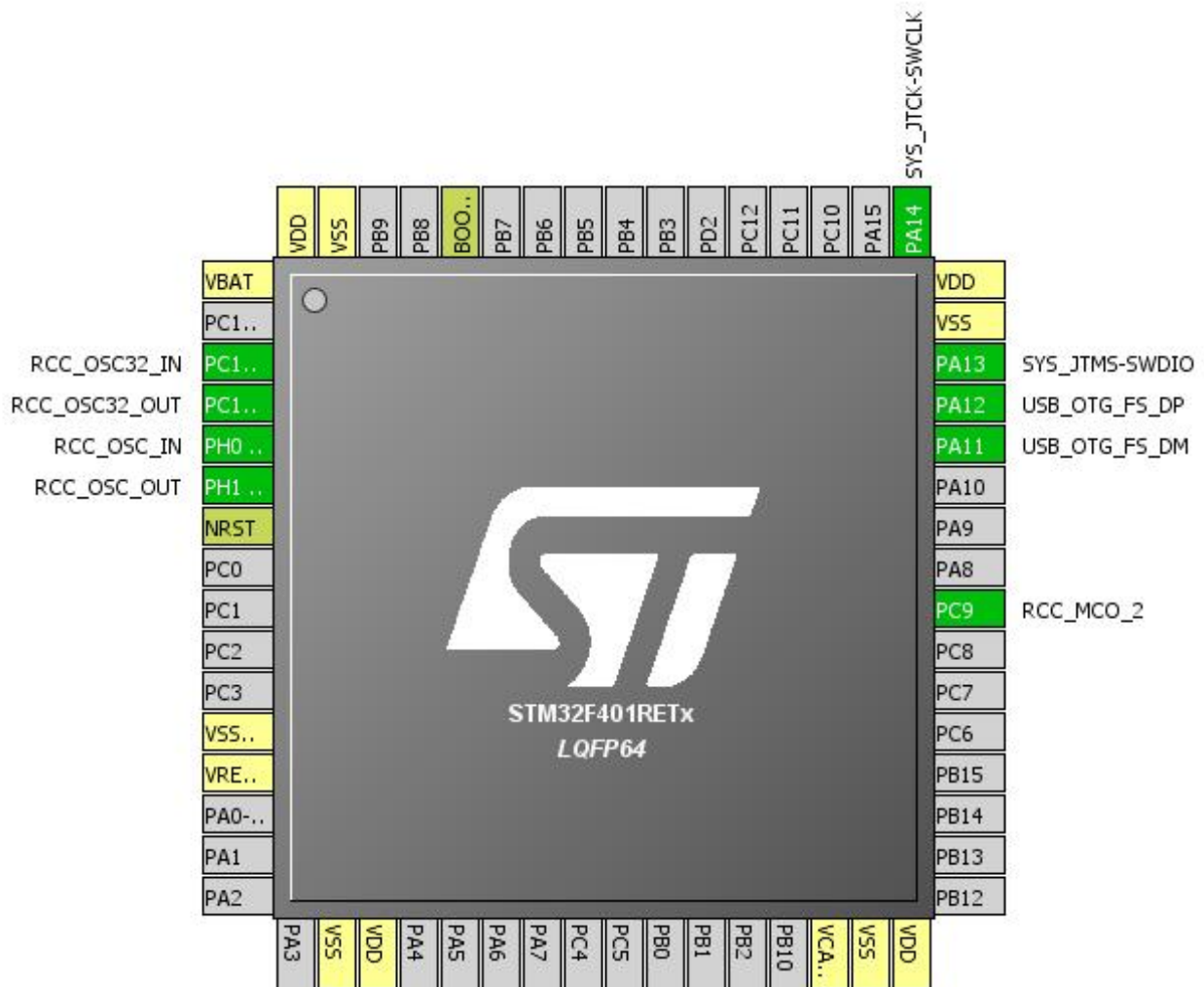
1.1. Project

| | |
|-----------------|--------------------|
| Project Name | Canon |
| Board Name | Canon |
| Generated with: | STM32CubeMX 4.14.0 |
| Date | 04/12/2016 |

1.2. MCU

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

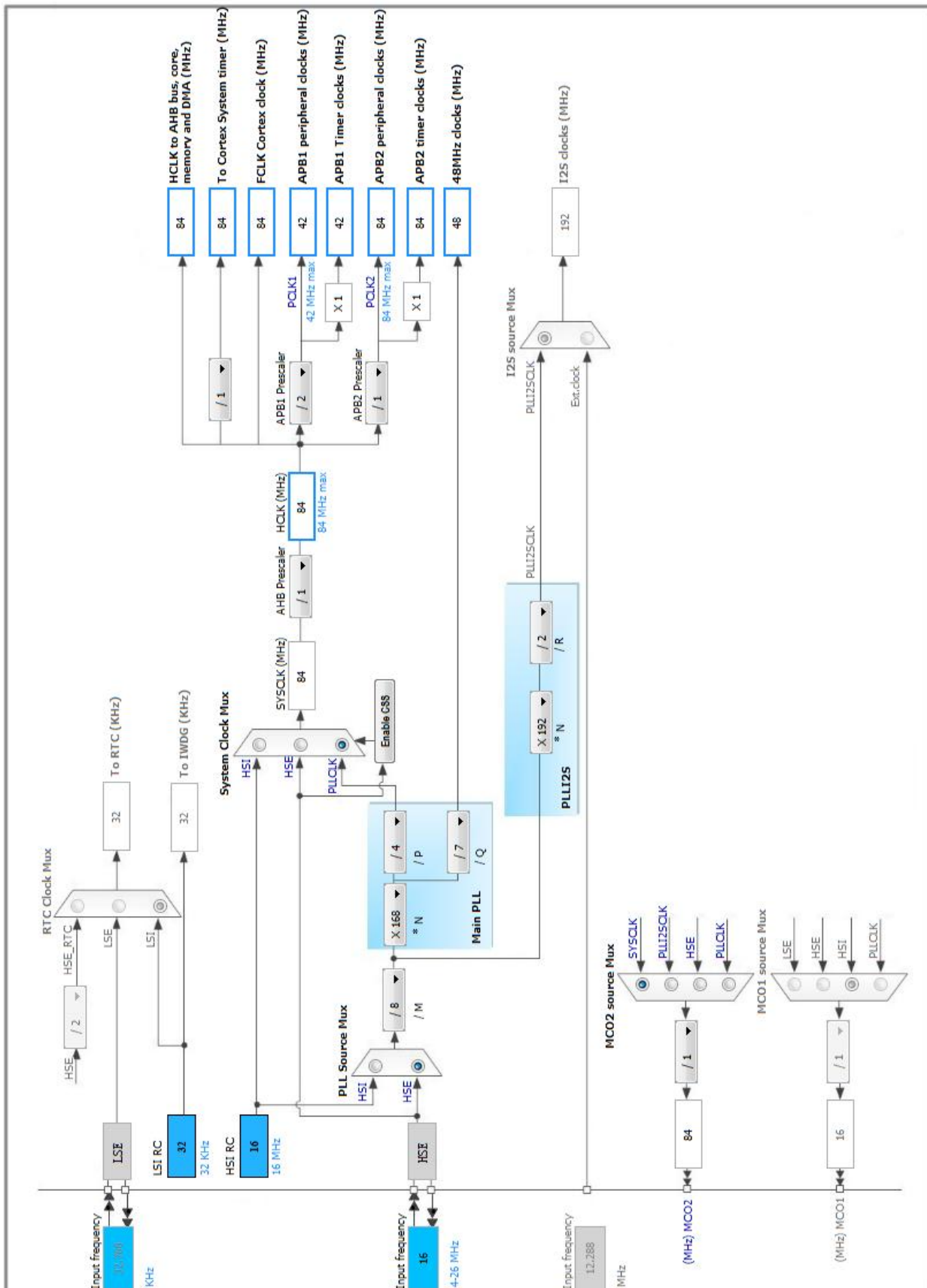
2. Pinout Configuration



3. Pins Configuration

| Pin Number LQFP64 | Pin Name (function after reset) | Pin Type | Alternate Function(s) | Label |
|----------------------|---------------------------------------|----------|--------------------------|-------|
| 1 | VBAT | Power | | |
| 3 | PC14-OSC32_IN | I/O | RCC_OSC32_IN | |
| 4 | PC15-OSC32_OUT | I/O | RCC_OSC32_OUT | |
| 5 | PH0 - OSC_IN | I/O | RCC_OSC_IN | |
| 6 | PH1 - OSC_OUT | I/O | RCC_OSC_OUT | |
| 7 | NRST | Reset | | |
| 12 | VSSA/VREF- | Power | | |
| 13 | VREF+ | Power | | |
| 18 | VSS | Power | | |
| 19 | VDD | Power | | |
| 30 | VCAP1 | Power | | |
| 31 | VSS | Power | | |
| 32 | VDD | Power | | |
| 40 | PC9 | I/O | RCC_MCO_2 | |
| 44 | PA11 | I/O | USB_OTG_FS_DM | |
| 45 | PA12 | I/O | USB_OTG_FS_DP | |
| 46 | PA13 | I/O | SYS_JTMS-SWDIO | |
| 47 | VSS | Power | | |
| 48 | VDD | Power | | |
| 49 | PA14 | I/O | SYS_JTCK-SWCLK | |
| 60 | BOOT0 | Boot | | |
| 63 | VSS | Power | | |
| 64 | VDD | Power | | |

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

Low Speed Clock (LSE) : Crystal/Ceramic Resonator

mode: Master Clock Output 2

5.1.1. Parameter Settings:

System Parameters:

| | |
|-------------------|--------------------|
| VDD voltage (V) | 3.3 |
| Instruction Cache | Enabled |
| Prefetch Buffer | Enabled |
| Data Cache | Enabled |
| Flash Latency(WS) | 2 WS (3 CPU cycle) |

RCC Parameters:

| | |
|-------------------------|----------|
| HSI Calibration Value | 16 |
| TIM Prescaler Selection | Disabled |

Power Parameters:

| | |
|-------------------------------|---------------------------------|
| Power Regulator Voltage Scale | Power Regulator Voltage Scale 2 |
|-------------------------------|---------------------------------|

5.2. SYS

Debug: Serial Wire Debug (SWD)

Timebase Source: SysTick

5.3. USB_OTG_FS

Mode: Device_Only

5.3.1. Parameter Settings:

| | |
|----------------------------|----------------------------|
| Speed | Device Full Speed 12MBit/s |
| Endpoint 0 Max Packet size | 64 Bytes |
| Enable internal IP DMA | Disabled |
| Low power | Disabled |
| Link Power Management | Disabled |
| VBUS sensing | Enabled |

5.4. USB_DEVICE

Class For FS IP: Communication Device Class (Virtual Port Com)

5.4.1. Parameter Settings:

Basic Parameters:

| | |
|--|---------------------|
| USBD_MAX_NUM_INTERFACES (Maximum number of supported interfaces) | 1 |
| USBD_MAX_NUM_CONFIGURATION (Maximum number of supported configuration) | 1 |
| USBD_MAX_STR_DESC_SIZ (Maximum size for the string descriptors) | 512 |
| USBD_SUPPORT_USER_STRING (Enable user string descriptor) | Disabled |
| USBD_SELF_POWERED (Enabled self power) | Enabled |
| USBD_DEBUG_LEVEL (USBD Debug Level) | 0: No debug message |

Class Parameters:

| | |
|---|------|
| USBD_CDC_INTERVAL (Number of micro-frames interval) | 1000 |
|---|------|

5.4.2. Device Descriptor:

Device Descriptor:

| | |
|---|------------------------|
| VID (Vendor Identifier) | 1155 |
| LANGID_STRING (Language Identifier) | English(United States) |
| MANUFACTURER_STRING (Manufacturer Identifier) | STMicroelectronics |

Device Descriptor FS:

| | |
|---|-----------------------|
| PID (Product Identifier) | 22336 |
| PRODUCT_STRING (Product Identifier) | STM32 Virtual ComPort |
| SERIALNUMBER_STRING (Serial number) | 00000000001A |
| CONFIGURATION_STRING (Configuration Identifier) | CDC Config |
| INTERFACE_STRING (Interface Identifier) | CDC Interface |

* User modified value

6. System Configuration

6.1. GPIO configuration

| IP | Pin | Signal | GPIO mode | GPIO pull/up pull down | Max Speed | User Label |
|------------|----------------|----------------|------------------------------|-----------------------------|---------------|------------|
| RCC | PC14-OSC32_IN | RCC_OSC32_IN | n/a | n/a | n/a | |
| | PC15-OSC32_OUT | RCC_OSC32_OUT | n/a | n/a | n/a | |
| | PH0 - OSC_IN | RCC_OSC_IN | n/a | n/a | n/a | |
| | PH1 - OSC_OUT | RCC_OSC_OUT | n/a | n/a | n/a | |
| | PC9 | RCC_MCO_2 | Alternate Function Push Pull | No pull-up and no pull-down | Low | |
| SYS | PA13 | SYS_JTMS-SWDIO | n/a | n/a | n/a | |
| | PA14 | SYS_JTCK-SWCLK | n/a | n/a | n/a | |
| USB_OTG_FS | PA11 | USB_OTG_FS_DM | Alternate Function Push Pull | No pull-up and no pull-down | High * | |
| | PA12 | USB_OTG_FS_DP | Alternate Function Push Pull | No pull-up and no pull-down | High * | |

6.2. DMA configuration

nothing configured in DMA service

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 |
| Debug monitor | true | 0 | 0 |
| System tick timer | true | 0 | 0 |
| USB On The Go FS global interrupt | true | 0 | 0 |
| PVD interrupt through EXTI line 16 | unused | | |
| Flash global interrupt | unused | | |
| RCC global interrupt | unused | | |

* User modified value

7. Power Plugin 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 | Canon |
| Project Folder | D:\Cannon\Canon |
| Toolchain / IDE | MDK-ARM V5 |
| Firmware Package Name and Version | STM32Cube FW_F4 V1.11.0 |

8.2. 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 |