

## 1. Description

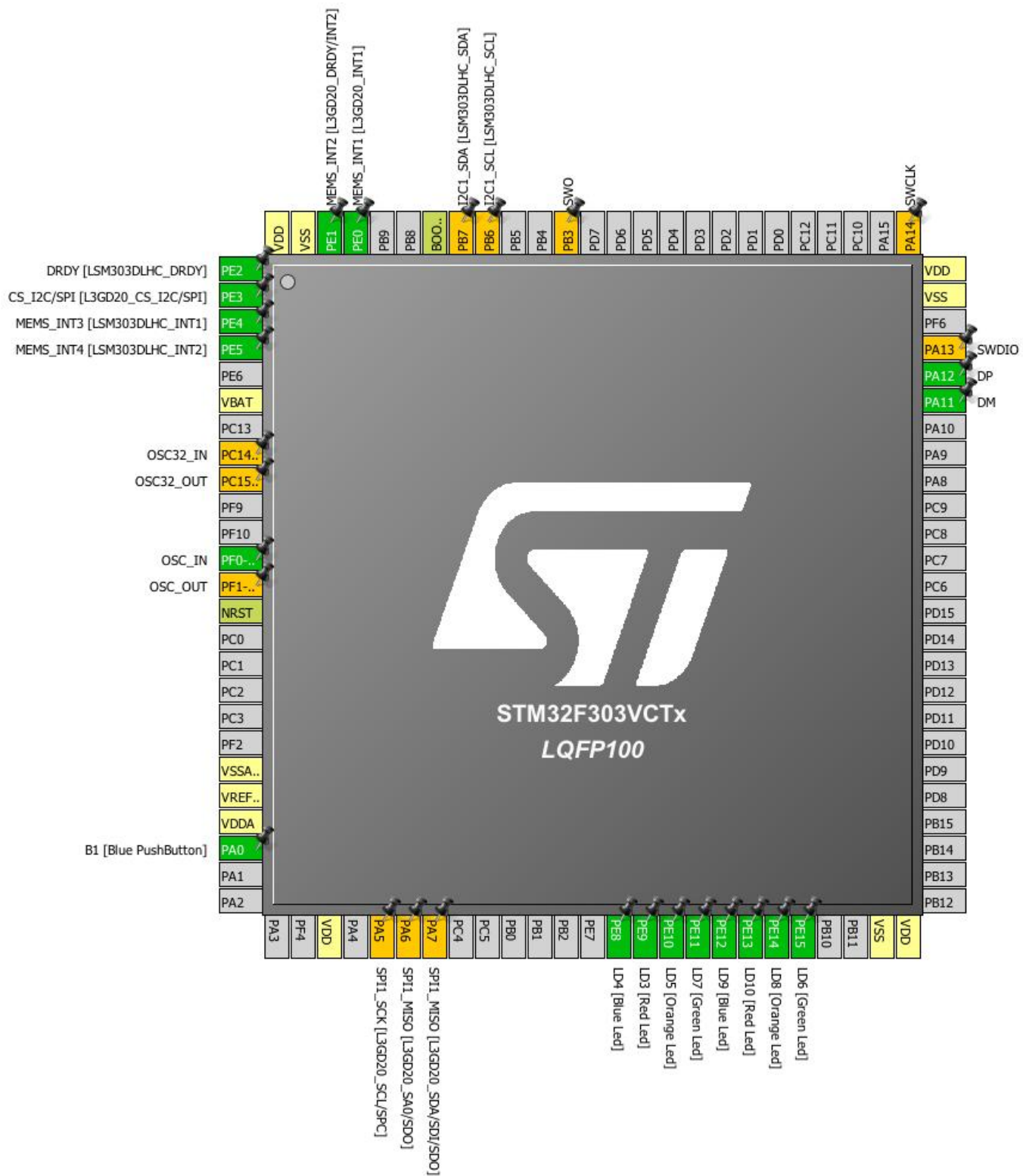
### 1.1. Project

|                 |                    |
|-----------------|--------------------|
| Project Name    | ramdisk            |
| Board Name      | STM32F3DISCOVERY   |
| Generated with: | STM32CubeMX 4.14.0 |
| Date            | 06/03/2016         |

### 1.2. MCU

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

## 2. Pinout Configuration



### 3. Pins Configuration

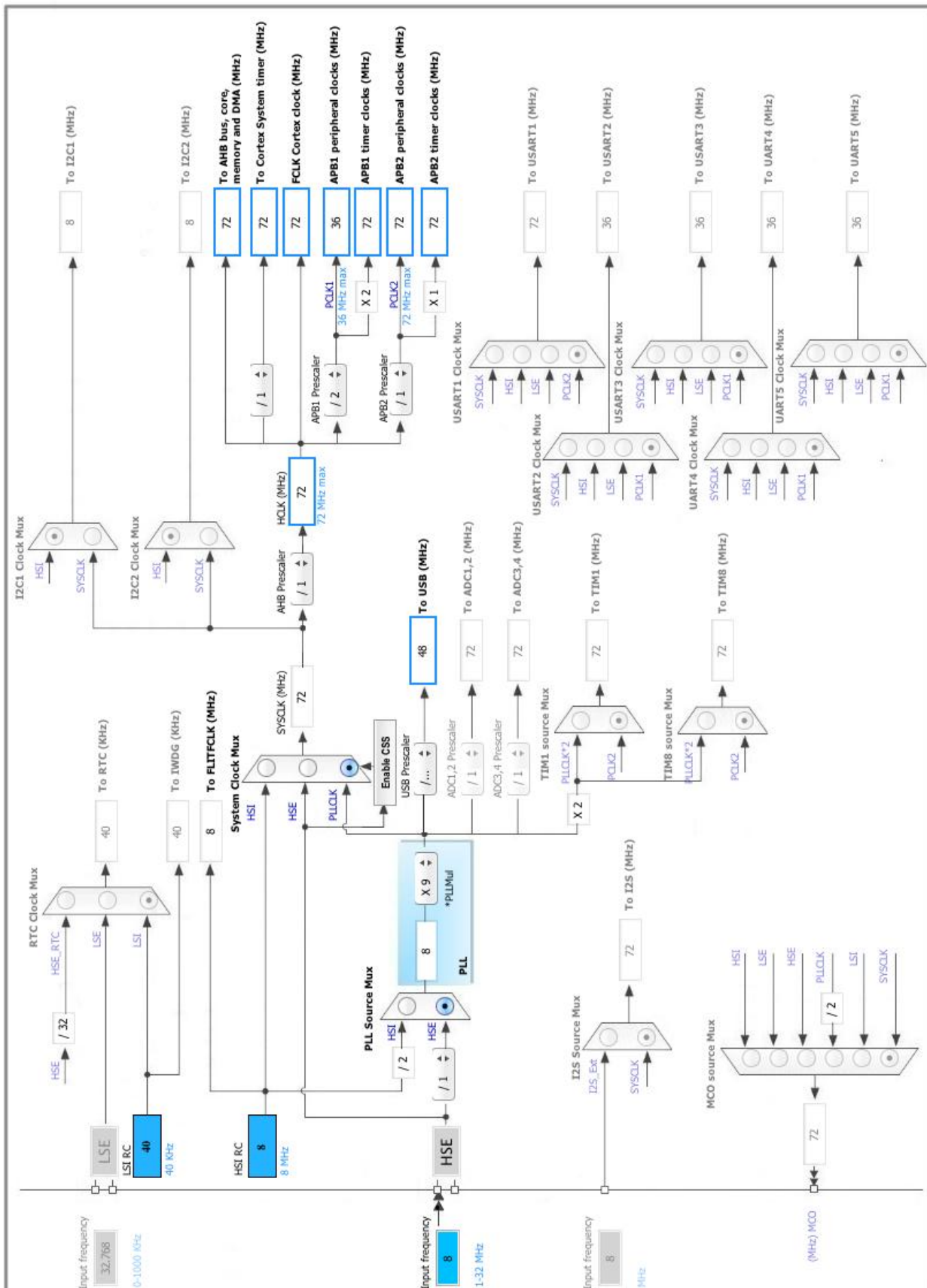
| Pin Number<br>LQFP100 | Pin Name<br>(function after<br>reset) | Pin Type | Alternate<br>Function(s) | Label                             |
|-----------------------|---------------------------------------|----------|--------------------------|-----------------------------------|
| 1                     | PE2                                   | I/O      | GPIO_EXTI2               | DRDY<br>[LSM303DLHC_DRDY]         |
| 2                     | PE3 *                                 | I/O      | GPIO_Output              | CS_I2C/SPI<br>[L3GD20_CS_I2C/SPI] |
| 3                     | PE4                                   | I/O      | GPIO_EXTI4               | MEMS_INT3<br>[LSM303DLHC_INT1]    |
| 4                     | PE5                                   | I/O      | GPIO_EXTI5               | MEMS_INT4<br>[LSM303DLHC_INT2]    |
| 6                     | VBAT                                  | Power    |                          |                                   |
| 8                     | PC14-OSC32_IN **                      | I/O      | RCC_OSC32_IN             | OSC32_IN                          |
| 9                     | PC15-OSC32_OUT **                     | I/O      | RCC_OSC32_OUT            | OSC32_OUT                         |
| 12                    | PF0-OSC_IN                            | I/O      | RCC_OSC_IN               | OSC_IN                            |
| 13                    | PF1-OSC_OUT **                        | I/O      | RCC_OSC_OUT              | OSC_OUT                           |
| 14                    | NRST                                  | Reset    |                          |                                   |
| 20                    | VSSA/VREF-                            | Power    |                          |                                   |
| 21                    | VREF+                                 | Power    |                          |                                   |
| 22                    | VDDA                                  | Power    |                          |                                   |
| 23                    | PA0 *                                 | I/O      | GPIO_Input               | B1 [Blue PushButton]              |
| 28                    | VDD                                   | Power    |                          |                                   |
| 30                    | PA5 **                                | I/O      | SPI1_SCK                 | SPI1_SCK<br>[L3GD20_SCL/SPC]      |
| 31                    | PA6 **                                | I/O      | SPI1_MISO                | SPI1_MISO<br>[L3GD20_SA0/SDO]     |
| 32                    | PA7 **                                | I/O      | SPI1_MOSI                | SPI1_MISO<br>[L3GD20_SDA/SDI/SDO] |
| 39                    | PE8 *                                 | I/O      | GPIO_Output              | LD4 [Blue Led]                    |
| 40                    | PE9 *                                 | I/O      | GPIO_Output              | LD3 [Red Led]                     |
| 41                    | PE10 *                                | I/O      | GPIO_Output              | LD5 [Orange Led]                  |
| 42                    | PE11 *                                | I/O      | GPIO_Output              | LD7 [Green Led]                   |
| 43                    | PE12 *                                | I/O      | GPIO_Output              | LD9 [Blue Led]                    |
| 44                    | PE13 *                                | I/O      | GPIO_Output              | LD10 [Red Led]                    |
| 45                    | PE14 *                                | I/O      | GPIO_Output              | LD8 [Orange Led]                  |
| 46                    | PE15 *                                | I/O      | GPIO_Output              | LD6 [Green Led]                   |
| 49                    | VSS                                   | Power    |                          |                                   |
| 50                    | VDD                                   | Power    |                          |                                   |
| 70                    | PA11                                  | I/O      | USB_DM                   | DM                                |
| 71                    | PA12                                  | I/O      | USB_DP                   | DP                                |

| Pin Number<br>LQFP100 | Pin Name<br>(function after<br>reset) | Pin Type | Alternate<br>Function(s) | Label                           |
|-----------------------|---------------------------------------|----------|--------------------------|---------------------------------|
| 72                    | PA13 **                               | I/O      | SYS_JTMS-SWDIO           | SWDIO                           |
| 74                    | VSS                                   | Power    |                          |                                 |
| 75                    | VDD                                   | Power    |                          |                                 |
| 76                    | PA14 **                               | I/O      | SYS_JTCK-SWCLK           | SWCLK                           |
| 89                    | PB3 **                                | I/O      | SYS_JTDO-TRACESWO        | SWO                             |
| 92                    | PB6 **                                | I/O      | I2C1_SCL                 | I2C1_SCL<br>[LSM303DLHC_SCL]    |
| 93                    | PB7 **                                | I/O      | I2C1_SDA                 | I2C1_SDA<br>[LSM303DLHC_SDA]    |
| 94                    | BOOT0                                 | Boot     |                          |                                 |
| 97                    | PE0                                   | I/O      | GPIO_EXTI0               | MEMS_INT1<br>[L3GD20_INT1]      |
| 98                    | PE1                                   | I/O      | GPIO_EXTI1               | MEMS_INT2<br>[L3GD20_DRDY/INT2] |
| 99                    | VSS                                   | Power    |                          |                                 |
| 100                   | VDD                                   | Power    |                          |                                 |

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

\*\* The pin is affected with a peripheral function but no peripheral mode is activated

## 4. Clock Tree Configuration



## 5. IPs and Middleware Configuration

### 5.1. RCC

High Speed Clock (HSE): BYPASS Clock Source

#### 5.1.1. 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 |
|-----------------------|----|

### 5.2. SYS

Timebase Source: SysTick

### 5.3. USB

mode: Device (FS)

#### 5.3.1. Parameter Settings:

##### Basic Parameters:

|                            |                     |
|----------------------------|---------------------|
| Speed                      | Full Speed 12MBit/s |
| Endpoint 0 Max Packet size | 64 Bytes            |
| Physical interface         | Internal Phy        |

##### Power Parameters:

|                  |          |
|------------------|----------|
| Low Power        | Disabled |
| Battery Charging | Disabled |

### 5.4. USB\_DEVICE

Class For FS IP: Mass Storage Class

### 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:

|  |     |
|--|-----|
| MSC_MEDIA_PACKET (Media I/O buffer Size) | 512 |
|--|-----|

### 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)                        | 22314              |
| PRODUCT_STRING (Product Identifier)             | STM32 Mass Storage |
| SERIALNUMBER_STRING (Serial number)             | 00000000001A       |
| CONFIGURATION_STRING (Configuration Identifier) | MSC Config         |
| INTERFACE_STRING (Interface Identifier)         | MSC 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                   | PF0-OSC_IN     | RCC_OSC_IN        | n/a  | n/a                    | n/a       | OSC_IN                            |
| USB                   | PA11           | USB_DM            | Alternate Function Push Pull                             | No pull up pull down   | High *    | DM                                |
|                       | PA12           | USB_DP            | Alternate Function Push Pull                             | No pull up pull down   | High *    | DP                                |
| Single Mapped Signals | PC14-OSC32_IN  | RCC_OSC32_IN      | n/a  | n/a                    | n/a       | OSC32_IN                          |
|                       | PC15-OSC32_OUT | RCC_OSC32_OUT     | n/a  | n/a                    | n/a       | OSC32_OUT                         |
|                       | PF1-OSC_OUT    | RCC_OSC_OUT       | n/a  | n/a                    | n/a       | OSC_OUT                           |
|                       | PA5            | SPI1_SCK          | Alternate Function Push Pull                             | No pull up pull down   | *         | SPI1_SCK<br>[L3GD20_SCL/SPC]      |
|                       | PA6            | SPI1_MISO         | Alternate Function Push Pull                             | No pull up pull down   | *         | SPI1_MISO<br>[L3GD20_SA0/SDO]     |
|                       | PA7            | SPI1_MOSI         | Alternate Function Push Pull                             | No pull up pull down   | *         | SPI1_MISO<br>[L3GD20_SDA/SDI/SDO] |
|                       | PA13           | SYS_JTMS-SWDIO    | n/a  | n/a                    | n/a       | SWDIO                             |
|                       | PA14           | SYS_JTCK-SWCLK    | n/a  | n/a                    | n/a       | SWCLK                             |
|                       | PB3            | SYS_JTDO-TRACESWO | n/a  | n/a                    | n/a       | SWO                               |
|                       | PB6            | I2C1_SCL          | Alternate Function Open Drain                            | Pull up                | *         | I2C1_SCL<br>[LSM303DLHC_SCL]      |
|                       | PB7            | I2C1_SDA          | Alternate Function Open Drain                            | Pull up                | *         | I2C1_SDA<br>[LSM303DLHC_SDA]      |
| GPIO                  | PE2            | GPIO_EXTI2        | External Event Mode with Rising edge trigger detection * | No pull up pull down   | n/a       | DRDY<br>[LSM303DLHC_DRDY]         |
|                       | PE3            | GPIO_Output       | Output Push Pull   | No pull up pull down   | *         | CS_I2C/SPI<br>[L3GD20_CS_I2C/SPI] |
|                       | PE4            | GPIO_EXTI4        | External Event Mode with Rising edge trigger detection * | No pull up pull down   | n/a       | MEMS_INT3<br>[LSM303DLHC_INT1]    |
|                       | PE5            | GPIO_EXTI5        | External Event Mode with Rising edge                     | No pull up pull down   | n/a       | MEMS_INT4<br>[LSM303DLHC_INT2]    |



| IP | Pin  | Signal      | GPIO mode   | GPIO pull/up pull down | Max Speed  | User Label                      |
|----|------|-------------|---|------------------------|------------|---------------------------------|
|    |      |             | <b>trigger detection *</b>  |                        |            |                                 |
|    | PA0  | GPIO_Input  | Input mode  | No pull up pull down   | <b>n/a</b> | B1 [Blue PushButton]            |
|    | PE8  | GPIO_Output | Output Push Pull  | No pull up pull down   | *          | LD4 [Blue Led]                  |
|    | PE9  | GPIO_Output | Output Push Pull  | No pull up pull down   | *          | LD3 [Red Led]                   |
|    | PE10 | GPIO_Output | Output Push Pull  | No pull up pull down   | *          | LD5 [Orange Led]                |
|    | PE11 | GPIO_Output | Output Push Pull  | No pull up pull down   | *          | LD7 [Green Led]                 |
|    | PE12 | GPIO_Output | Output Push Pull  | No pull up pull down   | *          | LD9 [Blue Led]                  |
|    | PE13 | GPIO_Output | Output Push Pull  | No pull up pull down   | *          | LD10 [Red Led]                  |
|    | PE14 | GPIO_Output | Output Push Pull  | No pull up pull down   | *          | LD8 [Orange Led]                |
|    | PE15 | GPIO_Output | Output Push Pull  | No pull up pull down   | *          | LD6 [Green Led]                 |
|    | PE0  | GPIO_EXTI0  | <b>External Event Mode<br/>with Rising edge<br/>trigger detection *</b> | No pull up pull down   | <b>n/a</b> | MEMS_INT1<br>[L3GD20_INT1]      |
|    | PE1  | GPIO_EXTI1  | <b>External Event Mode<br/>with Rising edge<br/>trigger detection *</b> | No pull up pull down   | <b>n/a</b> | MEMS_INT2<br>[L3GD20_DRDY/INT2] |

## 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 low priority or CAN_RX0 interrupts | true   | 0                    | 0           |
| PVD interrupt through EXTI line16      | unused |                      |             |
| Flash global interrupt                 | unused |                      |             |
| RCC global interrupt                   | unused |                      |             |
| USB high priority or CAN_TX interrupts | unused |                      |             |
| USB high priority interrupt remap      | unused |                      |             |
| USB low priority interrupt remap       | unused |                      |             |

\* User modified value

## ***7. Power Plugin report***

### 7.1. Microcontroller Selection

|           |               |
|-----------|---------------|
| Series    | STM32F3       |
| Line      | STM32F303     |
| MCU       | STM32F303VCTx |
| Datasheet | 023353_Rev12  |

### 7.2. Parameter Selection

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

## 8. Software Project

### 8.1. Project Settings

| Name                              | Value                         |
|-----------------------------------|-------------------------------|
| Project Name                      | ramdisk                       |
| Project Folder                    | /Users/geobrown/gpdsc/ramdisk |
| Toolchain / IDE                   | Other Toolchains (GPDSC)      |
| Firmware Package Name and Version | STM32Cube FW_F3 V1.4.0        |

### 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   | 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                                    |