
STM32
CubeMX

# 1. Description

## 1.1. Project

| | |
|---|---|
| Project Name | reflowOven |
| Board Name | STM32F407G-DISC1 |
| Generated with: | STM32CubeMX 6.2.1 |
| Date | 04/25/2021 |

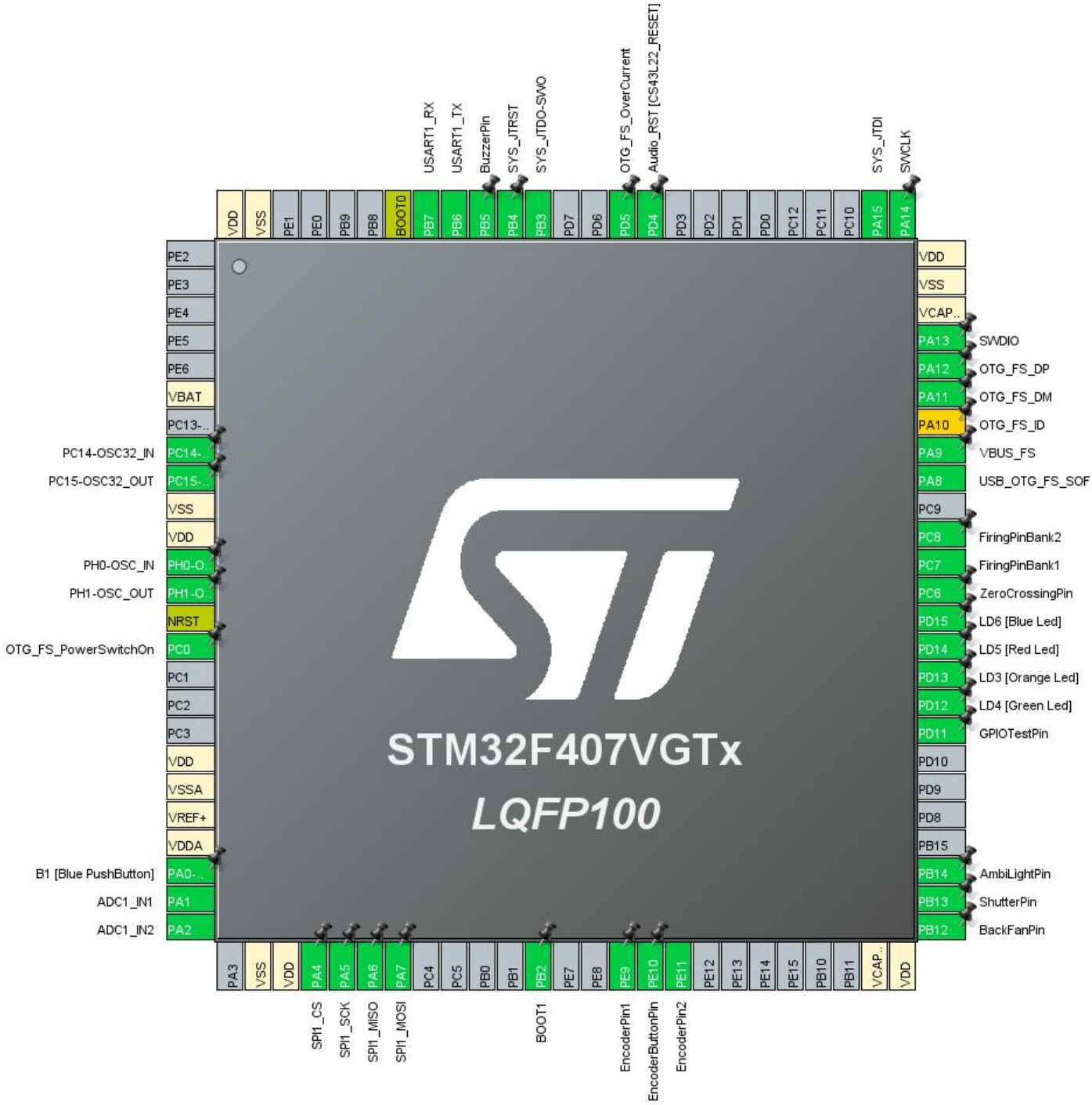
## 1.2. MCU

| | |
|---|---|
| MCU Series | STM32F4 |
| MCU Line | STM32F407/417 |
| MCU name | STM32F407VGTx |
| MCU Package | LQFP100 |
| MCU Pin number | 100 |

## 1.3. Core(s) information

| | |
|---|---|
| Core(s) | Arm Cortex-M4 |

## 2. Pinout Configuration



# 3. Pins Configuration

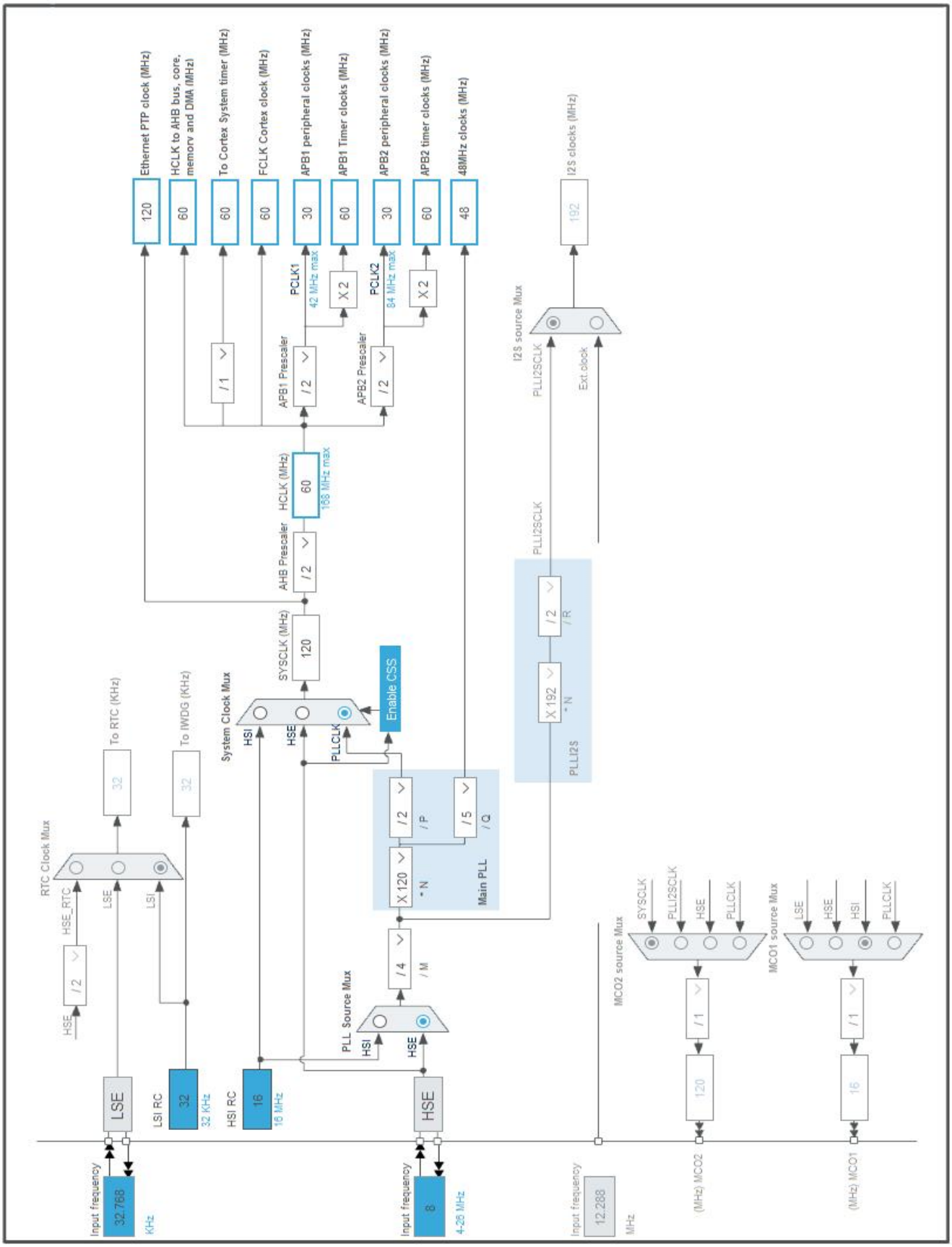
| Pin Number LQFP100 | Pin Name (function after reset) | Pin Type | Alternate Function(s) | Label |
|---|---|---|---|---|
| 6 | VBAT | Power | | |
| 8 | PC14-OSC32_IN | I/O | RCC_OSC32_IN | PC14-OSC32_IN |
| 9 | PC15-OSC32_OUT | I/O | RCC_OSC32_OUT | PC15-OSC32_OUT |
| 10 | VSS | Power | | |
| 11 | VDD | Power | | |
| 12 | PH0-OSC_IN | I/O | RCC_OSC_IN | PH0-OSC_IN |
| 13 | PH1-OSC_OUT | I/O | RCC_OSC_OUT | PH1-OSC_OUT |
| 14 | NRST | Reset | | |
| 15 | PC0 * | I/O | GPIO_Output | OTG_FS_PowerSwitchOn |
| 19 | VDD | Power | | |
| 20 | VSSA | Power | | |
| 21 | VREF+ | Power | | |
| 22 | VDDA | Power | | |
| 23 | PA0-WKUP | I/O | GPIO_EXTI0 | B1 [Blue PushButton] |
| 24 | PA1 | I/O | ADC1_IN1 | |
| 25 | PA2 | I/O | ADC1_IN2 | |
| 27 | VSS | Power | | |
| 28 | VDD | Power | | |
| 29 | PA4 * | I/O | GPIO_Output | SPI1_CS |
| 30 | PA5 | I/O | SPI1_SCK | SPI1_SCK |
| 31 | PA6 | I/O | SPI1_MISO | SPI1_MISO |
| 32 | PA7 | I/O | SPI1_MOSI | SPI1_MOSI |
| 37 | PB2 * | I/O | GPIO_Input | BOOT1 |
| 40 | PE9 | I/O | TIM1_CH1 | EncoderPin1 |
| 41 | PE10 * | I/O | GPIO_Input | EncoderButtonPin |
| 42 | PE11 | I/O | TIM1_CH2 | EncoderPin2 |
| 49 | VCAP_1 | Power | | |
| 50 | VDD | Power | | |
| 51 | PB12 * | I/O | GPIO_Output | BackFanPin |
| 52 | PB13 * | I/O | GPIO_Output | ShutterPin |
| 53 | PB14 * | I/O | GPIO_Output | AmbiLightPin |
| 58 | PD11 * | I/O | GPIO_Output | GPIOTestPin |
| 59 | PD12 * | I/O | GPIO_Output | LD4 [Green Led] |
| 60 | PD13 * | I/O | GPIO_Output | LD3 [Orange Led] |
| 61 | PD14 * | I/O | GPIO_Output | LD5 [Red Led] |
| 62 | PD15 * | I/O | GPIO_Output | LD6 [Blue Led] |

| Pin Number LQFP100 | Pin Name (function after reset) | Pin Type | Alternate Function(s) | Label |
|---|---|---|---|---|
| 63 | PC6 | I/O | GPIO_EXTI6 | ZeroCrossingPin |
| 64 | PC7 | I/O | TIM3_CH2 | FiringPinBank1 |
| 65 | PC8 | I/O | TIM3_CH3 | FiringPinBank2 |
| 67 | PA8 | I/O | USB_OTG_FS_SOF | |
| 68 | PA9 | I/O | USB_OTG_FS_VBUS | VBUS_FS |
| 69 | PA10 ** | I/O | USB_OTG_FS_ID | OTG_FS_ID |
| 70 | PA11 | I/O | USB_OTG_FS_DM | OTG_FS_DM |
| 71 | PA12 | I/O | USB_OTG_FS_DP | OTG_FS_DP |
| 72 | PA13 | I/O | SYS_JTMS-SWDIO | SWDIO |
| 73 | VCAP_2 | Power | | |
| 74 | VSS | Power | | |
| 75 | VDD | Power | | |
| 76 | PA14 | I/O | SYS_JTCK-SWCLK | SWCLK |
| 77 | PA15 | I/O | SYS_JTDI | |
| 85 | PD4 * | I/O | GPIO_Output | Audio_RST [CS43L22_RESET] |
| 86 | PD5 * | I/O | GPIO_Input | OTG_FS_OverCurrent |
| 89 | PB3 | I/O | SYS_JTDO-SWO | |
| 90 | PB4 | I/O | SYS_JTRST | |
| 91 | PB5 * | I/O | GPIO_Output | BuzzerPin |
| 92 | PB6 | I/O | USART1_TX | |
| 93 | PB7 | I/O | USART1_RX | |
| 94 | BOOT0 | Boot | | |
| 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. Software Project

## 5.1. Project Settings

| Name | Value |
|---|---|
| Project Name | reflowOven |
| Project Folder | C:\Users\mmitr\STM32CubeIDE\workspace_1.6.0\reflowOven |
| Toolchain / IDE | STM32CubeIDE |
| Firmware Package Name and Version | STM32Cube FW_F4 V1.25.2 |
| Application Structure | Advanced |
| Generate Under Root | Yes |
| Do not generate the main() | No |
| Minimum Heap Size | 0x200 |
| Minimum Stack Size | 0x400 |

## 5.2. Code Generation Settings

| Name | Value |
|---|---|
| STM32Cube MCU packages and embedded software | 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 |
| Keep User Code 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 |
| Enable Full Assert | No |

## 5.3. Advanced Settings - Generated Function Calls

| Rank | Function Name | Peripheral Instance Name |
|---|---|---|
| 1 | MX_GPIO_Init | GPIO |
| 2 | SystemClock_Config | RCC |
| 3 | MX_SPI1_Init | SPI1 |
| 4 | MX_TIM5_Init | TIM5 |
| 5 | MX_TIM1_Init | TIM1 |
| 6 | MX_TIM2_Init | TIM2 |
| 7 | MX_ADC1_Init | ADC1 |
| 8 | MX_USART1_UART_Init | USART1 |
| 9 | MX_TIM3_Init | TIM3 |
| 10 | MX_USB_DEVICE_Init | USB_DEVICE |

# 6. Power Consumption Calculator report

## 6.1. Microcontroller Selection

| | |
|---|---|
| Series | STM32F4 |
| Line | STM32F407/417 |
| MCU | STM32F407VGTx |
| Datasheet | DS8626_Rev8 |

## 6.2. Parameter Selection

| | |
|---|---|
| Temperature | 25 |
| Vdd | 3.3 |

## 6.3. Battery Selection

| | |
|---|---|
| Battery | Li-SOCL2(A3400) |
| Capacity | 3400.0 mAh |
| Self Discharge | 0.08 %/month |
| Nominal Voltage | 3.6 V |
| Max Cont Current | 100.0 mA |
| Max Pulse Current | 200.0 mA |
| Cells in series | 1 |
| Cells in parallel | 1 |

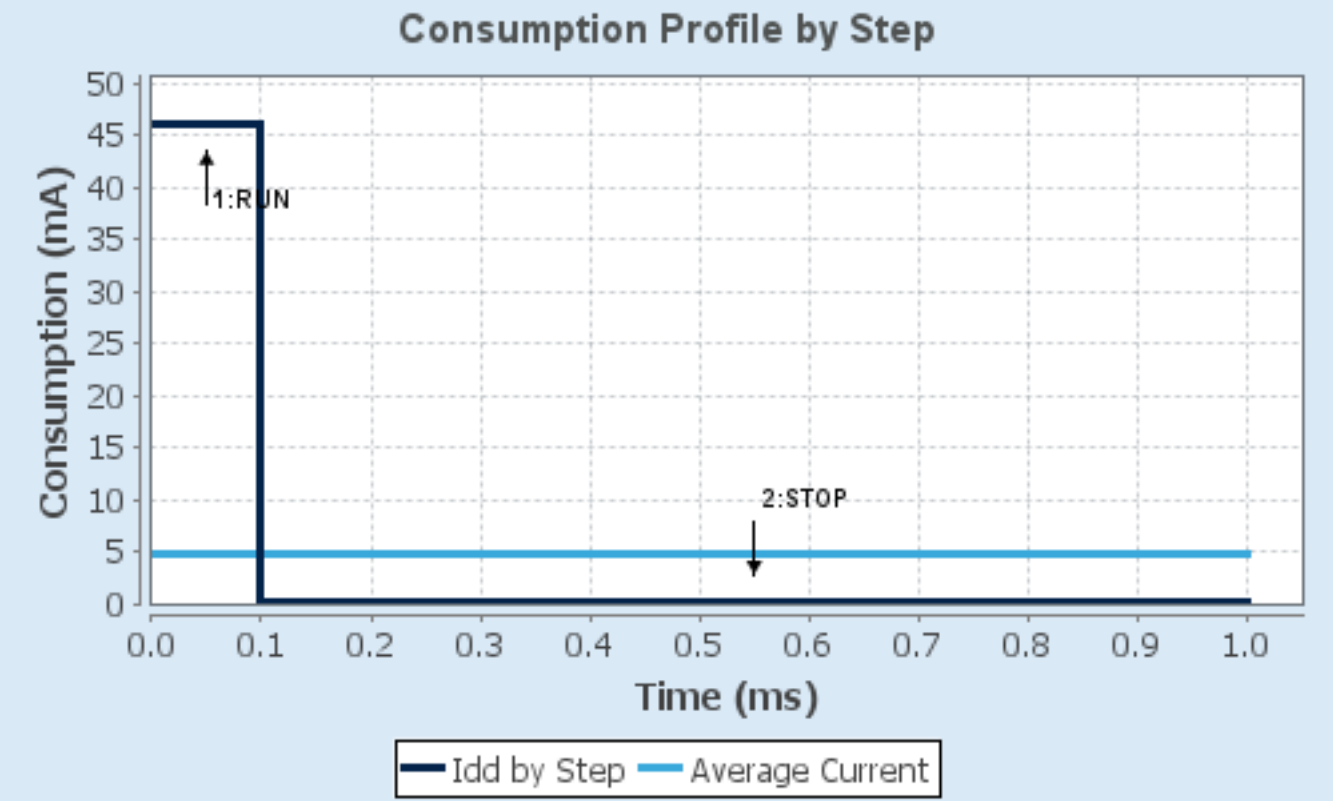
## 6.4. Sequence

| ***Step*** | Step1 | Step2 |
|---|---|---|
| ***Mode*** | RUN | STOP |
| ***Vdd*** | 3.3 | 3.3 |
| ***Voltage Source*** | Battery | Battery |
| ***Range*** | Scale1-High | No Scale |
| ***Fetch Type*** | FLASH | n/a |
| ***CPU Frequency*** | 168 MHz | 0 Hz |
| ***Clock Configuration*** | HSE PLL | Regulator_LP Flash-PwrDwn |
| ***Clock Source Frequency*** | 4 MHz | 0 Hz |
| ***Peripherals*** | | |
| ***Additional Cons.*** | 0 mA | 0 mA |
| ***Average Current*** | 46 mA | 280 µA |
| ***Duration*** | 0.1 ms | 0.9 ms |
| ***DMIPS*** | 210.0 | 0.0 |
| ***Ta Max*** | 98.47 | 104.96 |
| ***Category*** | In DS Table | In DS Table |

## 6.5. Results

| Sequence Time | 1 ms | Average Current | 4.85 mA |
|---|---|---|---|
| Battery Life | 29 days, 4 hours | Average DMIPS | 210.0 DMIPS |

## 6.6. Chart


Consumption Profile by Step
Consumption (mA)
50
45
40
35
30
25
20
15
10
5
0
1:RUN
2:STOP
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Time (ms)
Idd by Step
Average Current

# 7. Peripherals and Middlewares Configuration

## 7.1. ADC1

**mode: IN1**

**mode: IN2**

### 7.1.1. Parameter Settings:

**ADCs_Common_Settings:**

| | |
|---|---|
| Mode | Independent mode |

**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 | Disabled |
| Discontinuous Conversion Mode | Disabled |
| DMA Continuous Requests | Disabled |
| End Of Conversion Selection | EOC flag at the end of single channel conversion |

**ADC_Regular_ConversionMode:**

| | |
|---|---|
| Number Of Conversion | 1 |
| External Trigger Conversion Source | Regular Conversion launched by software |
| External Trigger Conversion Edge | None |
| Rank | 1 |
| Channel | Channel 1 |
| Sampling Time | 3 Cycles |

**ADC_Injected_ConversionMode:**

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

**WatchDog:**

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

## 7.2. RCC

**High Speed Clock (HSE): Crystal/Ceramic Resonator**

**Low Speed Clock (LSE) : Crystal/Ceramic Resonator**

### 7.2.1. Parameter Settings:

**System Parameters:**

| | |
|---|---|
| VDD voltage (V) | 3.3 |
| Instruction Cache | Enabled |
| Prefetch Buffer | Enabled |

| | |
|---|---|
| Data Cache | Enabled |
| Flash Latency(WS) | 1 WS (2 CPU cycle) |

**RCC Parameters:**

| | |
|---|---|
| HSI Calibration Value | 16 |
| HSE Startup Timout Value (ms) | 100 |
| LSE Startup Timout Value (ms) | 5000 |

**Power Parameters:**

| | |
|---|---|
| Power Regulator Voltage Scale | Power Regulator Voltage Scale 1 |

## 7.3. SPI1

## Mode: Full-Duplex Master

### 7.3.1. Parameter Settings:

**Basic Parameters:**

| | |
|---|---|
| Frame Format | Motorola |
| Data Size | 8 Bits |
| First Bit | MSB First |

**Clock Parameters:**

| | |
|---|---|
| Prescaler (for Baud Rate) | **256 *** |
| Baud Rate | **117.187 KBits/s *** |
| Clock Polarity (CPOL) | Low |
| Clock Phase (CPHA) | 1 Edge |

**Advanced Parameters:**

| | |
|---|---|
| CRC Calculation | Disabled |
| NSS Signal Type | Software |

## 7.4. SYS

## Debug: JTAG (5 pins)

## Timebase Source: SysTick

## 7.5. TIM1

## Combined Channels: Encoder Mode

### 7.5.1. Parameter Settings:

**Counter Settings:**

| | |
|---|---|
| Prescaler (PSC - 16 bits value) | 0 |

| | |
|---|---|
| Counter Mode | Up |
| Counter Period (AutoReload Register - 16 bits value ) | 65535 |
| Internal Clock Division (CKD) | No Division |
| Repetition Counter (RCR - 8 bits value) | 0 |
| auto-reload preload | Disable |

**Trigger Output (TRGO) Parameters:**

| | |
|---|---|
| Master/Slave Mode (MSM bit) | Disable (Trigger input effect not delayed) |
| Trigger Event Selection | Reset (UG bit from TIMx_EGR) |

**Encoder:**

| | |
|---|---|
| Encoder Mode | **Encoder Mode TI1 and TI2 *** |
| ____ Parameters for Channel 1 ____ | |
| Polarity | Rising Edge |
| IC Selection | Direct |
| Prescaler Division Ratio | No division |
| Input Filter | **10 *** |
| ____ Parameters for Channel 2 ____ | |
| Polarity | Rising Edge |
| IC Selection | Direct |
| Prescaler Division Ratio | No division |
| Input Filter | **10 *** |

## 7.6. TIM2

## Clock Source : Internal Clock

### 7.6.1. Parameter Settings:

**Counter Settings:**

| | |
|---|---|
| Prescaler (PSC - 16 bits value) | **59999 *** |
| Counter Mode | Up |
| Counter Period (AutoReload Register - 32 bits value ) | **1 *** |
| Internal Clock Division (CKD) | No Division |
| auto-reload preload | Disable |

**Trigger Output (TRGO) Parameters:**

| | |
|---|---|
| Master/Slave Mode (MSM bit) | Disable (Trigger input effect not delayed) |
| Trigger Event Selection | **Update Event *** |

## 7.7. TIM3

**Clock Source : Internal Clock**

**Channel2: PWM Generation CH2**

**Channel3: PWM Generation CH3**

### 7.7.1. Parameter Settings:

**Counter Settings:**

| | |
|---|---|
| Prescaler (PSC - 16 bits value) | **599 *** |
| Counter Mode | Up |
| Counter Period (AutoReload Register - 16 bits value ) | **999 *** |
| Internal Clock Division (CKD) | No Division |
| auto-reload preload | Disable |

**Trigger Output (TRGO) Parameters:**

| | |
|---|---|
| Master/Slave Mode (MSM bit) | Disable (Trigger input effect not delayed) |
| Trigger Event Selection | **Update Event *** |

**PWM Generation Channel 2:**

| | |
|---|---|
| Mode | PWM mode 1 |
| Pulse (16 bits value) | 0 |
| Output compare preload | Enable |
| Fast Mode | Disable |
| CH Polarity | High |

**PWM Generation Channel 3:**

| | |
|---|---|
| Mode | PWM mode 1 |
| Pulse (16 bits value) | 0 |
| Output compare preload | Enable |
| Fast Mode | Disable |
| CH Polarity | High |

## 7.8. TIM5

**mode: Clock Source**

### 7.8.1. Parameter Settings:

**Counter Settings:**

| | |
|---|---|
| Prescaler (PSC - 16 bits value) | **59 *** |
| Counter Mode | Up |
| Counter Period (AutoReload Register - 32 bits value ) | 0xffffffff |
| Internal Clock Division (CKD) | No Division |
| auto-reload preload | Disable |

**Trigger Output (TRGO) Parameters:**

| | |
|---|---|
| Master/Slave Mode (MSM bit) | Disable (Trigger input effect not delayed) |
| Trigger Event Selection | **Update Event *** |

## 7.9. USART1

## Mode: Asynchronous

### 7.9.1. Parameter Settings:

**Basic Parameters:**

| | |
|---|---|
| Baud Rate | **9600 *** |
| Word Length | 8 Bits (including Parity) |
| Parity | None |
| Stop Bits | 1 |

**Advanced Parameters:**

| | |
|---|---|
| Data Direction | Receive and Transmit |
| Over Sampling | 16 Samples |

## 7.10. USB_OTG_FS

## Mode: Device_Only

## mode: Activate_SOF

## mode: Activate_VBUS

### 7.10.1. Parameter Settings:

| | |
|---|---|
| Speed | Device Full Speed 12MBit/s |
| Low power | Disabled |
| Link Power Management | Disabled |
| VBUS sensing | Enabled |
| Signal start of frame | Enabled |

## 7.11. USB_DEVICE

## Class For FS IP: Download Firmware Update Class (DFU)

### 7.11.1. 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_DESC (Enable user string descriptor) | Enabled |
| USBD_SELF_POWERED (Enabled self power) | Enabled |
| USBD_DEBUG_LEVEL (USBD Debug Level) | 0: No debug message |

**Class Parameters:**

| | |
|---|---|
| USBD_DFU_MAX_ITF_NUM (DFU maximum interface numbers) | 1 |
| USBD_DFU_XFER_SIZE | 1024 |
| USBD_DFU_APP_DEFAULT_ADD (Base Address 0x) | **0x08000000 *** |
| USBD_DFU_MEDIA Interface | @Internal Flash /0x08000000/03*016Ka,01*016Kg,01*064Kg,07*128Kg,04*016Kg,01*064Kg,07*1 |

## 7.11.2. 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) | 57105 |
| PRODUCT_STRING (Product Identifier) | STM32 DownLoad Firmware Update |
| CONFIGURATION_STRING (Configuration Identifier) | DFU Config |
| INTERFACE_STRING (Interface Identifier) | DFU Interface |

*** User modified value**

# 8. System Configuration

## 8.1. GPIO configuration

| IP | Pin | Signal | GPIO mode | GPIO pull/up pull down | Max Speed | User Label |
|---|---|---|---|---|---|---|
| ADC1 | PA1 | ADC1_IN1 | Analog mode | No pull-up and no pull-down | n/a | |
| | PA2 | ADC1_IN2 | Analog mode | No pull-up and no pull-down | n/a | |
| RCC | PC14-OSC32_IN | RCC_OSC32_IN | n/a | n/a | n/a | PC14-OSC32_IN |
| | PC15-OSC32_OUT | RCC_OSC32_OUT | n/a | n/a | n/a | PC15-OSC32_OUT |
| | PH0-OSC_IN | RCC_OSC_IN | n/a | n/a | n/a | PH0-OSC_IN |
| | PH1-OSC_OUT | RCC_OSC_OUT | n/a | n/a | n/a | PH1-OSC_OUT |
| SPI1 | PA5 | SPI1_SCK | Alternate Function Push Pull | No pull-up and no pull-down | Low | SPI1_SCK |
| | PA6 | SPI1_MISO | Alternate Function Push Pull | No pull-up and no pull-down | Low | SPI1_MISO |
| | PA7 | SPI1_MOSI | Alternate Function Push Pull | No pull-up and no pull-down | Low | SPI1_MOSI |
| SYS | PA13 | SYS_JTMS-SWDIO | n/a | n/a | n/a | SWDIO |
| | PA14 | SYS_JTCK-SWCLK | n/a | n/a | n/a | SWCLK |
| | PA15 | SYS_JTDI | n/a | n/a | n/a | |
| | PB3 | SYS_JTDO-SWO | n/a | n/a | n/a | |
| | PB4 | SYS_JTRST | n/a | n/a | n/a | |
| TIM1 | PE9 | TIM1_CH1 | Alternate Function Push Pull | No pull-up and no pull-down | Low | EncoderPin1 |
| | PE11 | TIM1_CH2 | Alternate Function Push Pull | No pull-up and no pull-down | Low | EncoderPin2 |
| TIM3 | PC7 | TIM3_CH2 | Alternate Function Push Pull | No pull-up and no pull-down | Low | FiringPinBank1 |
| | PC8 | TIM3_CH3 | Alternate Function Push Pull | No pull-up and no pull-down | Low | FiringPinBank2 |
| USART1 | PB6 | USART1_TX | Alternate Function Push Pull | No pull-up and no pull-down | **Very High *** | |
| | PB7 | USART1_RX | Alternate Function Push Pull | No pull-up and no pull-down | **Very High *** | |
| USB_OTG_FS | PA8 | USB_OTG_FS_SOF | Alternate Function Push Pull | No pull-up and no pull-down | **Very High *** | |
| | PA9 | USB_OTG_FS_VBUS | Input mode | No pull-up and no pull-down | **n/a** | VBUS_FS |
| | PA11 | USB_OTG_FS_DM | Alternate Function Push Pull | No pull-up and no pull-down | Low | OTG_FS_DM |
| | PA12 | USB_OTG_FS_DP | Alternate Function Push Pull | No pull-up and no pull-down | Low | OTG_FS_DP |

| IP | Pin | Signal | GPIO mode | GPIO pull/up pull down | Max Speed | User Label |
|---|---|---|---|---|---|---|
| Single Mapped Signals | PA10 | USB_OTG_FS_ID | Alternate Function Push Pull | No pull-up and no pull-down | Low | OTG_FS_ID |
| GPIO | PC0 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | OTG_FS_PowerSwitchOn |
| | PA0-WKUP | GPIO_EXTI0 | **External Event Mode with Rising edge trigger detection *** | No pull-up and no pull-down | n/a | B1 [Blue PushButton] |
| | PA4 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | SPI1_CS |
| | PB2 | GPIO_Input | Input mode | No pull-up and no pull-down | n/a | BOOT1 |
| | PE10 | GPIO_Input | Input mode | No pull-up and no pull-down | n/a | EncoderButtonPin |
| | PB12 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | BackFanPin |
| | PB13 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | ShutterPin |
| | PB14 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | AmbiLightPin |
| | PD11 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | GPIOTestPin |
| | PD12 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | LD4 [Green Led] |
| | PD13 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | LD3 [Orange Led] |
| | PD14 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | LD5 [Red Led] |
| | PD15 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | LD6 [Blue Led] |
| | PC6 | GPIO_EXTI6 | External Interrupt Mode with Rising edge trigger detection | No pull-up and no pull-down | n/a | ZeroCrossingPin |
| | PD4 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | Audio_RST [CS43L22_RESET] |
| | PD5 | GPIO_Input | Input mode | No pull-up and no pull-down | n/a | OTG_FS_OverCurrent |
| | PB5 | GPIO_Output | **Output Open Drain *** | **Pull-up *** | Low | BuzzerPin |

### 8.2. DMA configuration

nothing configured in DMA service

## 8.3. NVIC configuration

### 8.3.1. NVIC

| 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 |
| EXTI line[9:5] interrupts | true | 0 | 1 |
| TIM1 break interrupt and TIM9 global interrupt | true | 0 | 2 |
| TIM2 global interrupt | true | 0 | 1 |
| USART1 global interrupt | true | 0 | 0 |
| TIM5 global interrupt | true | 0 | 1 |
| PVD interrupt through EXTI line 16 | unused | | |
| Flash global interrupt | unused | | |
| RCC global interrupt | unused | | |
| ADC1, ADC2 and ADC3 global interrupts | unused | | |
| TIM1 update interrupt and TIM10 global interrupt | unused | | |
| TIM1 trigger and commutation interrupts and TIM11 global interrupt | unused | | |
| TIM1 capture compare interrupt | unused | | |
| TIM3 global interrupt | unused | | |
| SPI1 global interrupt | unused | | |
| USB On The Go FS global interrupt | unused | | |
| FPU global interrupt | unused | | |

### 8.3.2. NVIC Code generation

| Enabled interrupt Table | Select for init sequence ordering | Generate IRQ handler | Call HAL handler |
|---|---|---|---|
| Non maskable interrupt | false | true | false |
| Hard fault interrupt | false | true | false |
| Memory management fault | false | true | false |
| Pre-fetch fault, memory access fault | false | true | false |
| Undefined instruction or illegal state | false | true | false |
| System service call via SWI instruction | false | true | false |
| | | | |

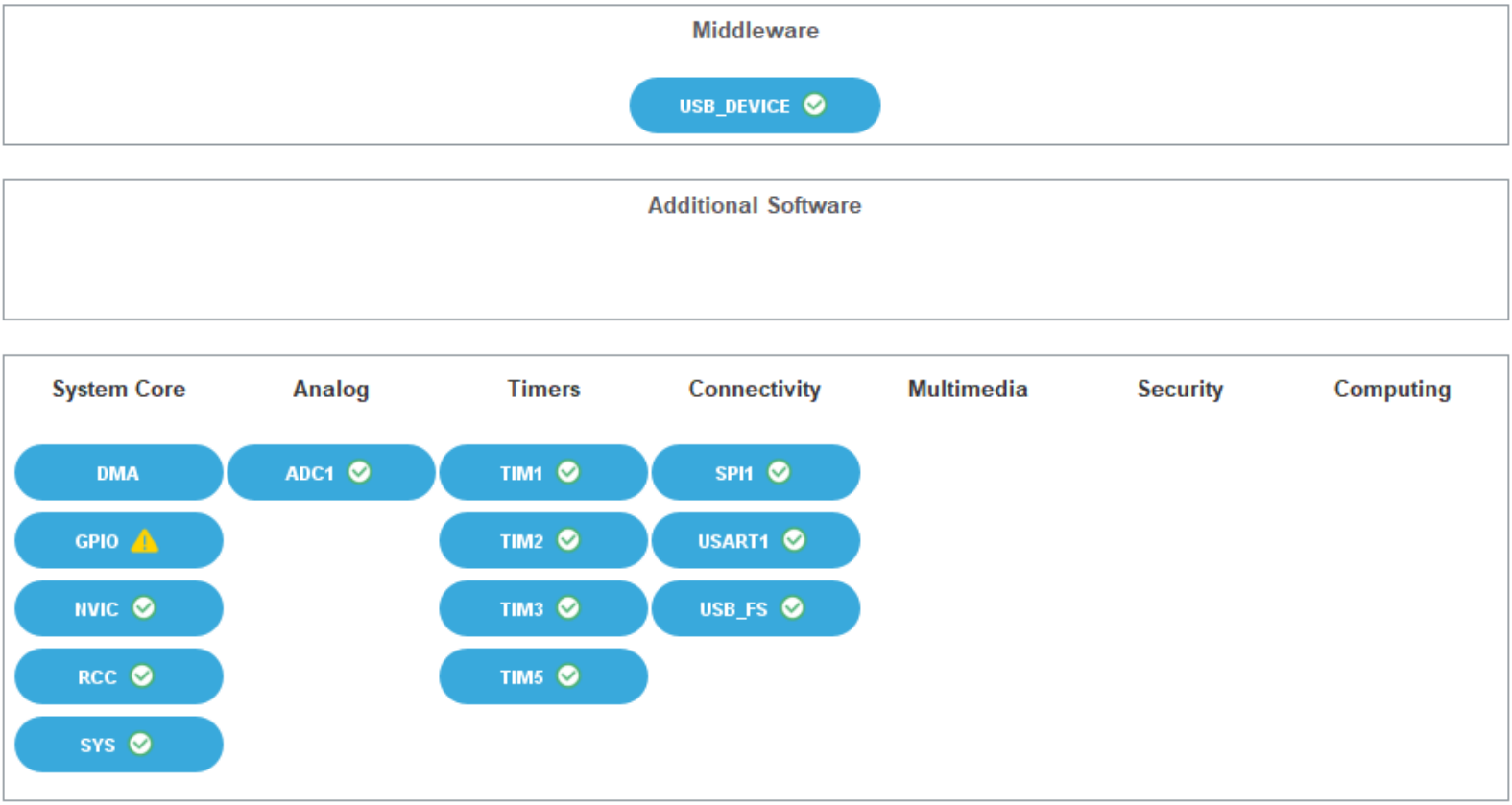
| Enabled interrupt Table | Select for init sequence ordering | Generate IRQ handler | Call HAL handler |
|---|---|---|---|
| Debug monitor | false | true | false |
| Pendable request for system service | false | true | false |
| System tick timer | false | true | true |
| EXTI line[9:5] interrupts | false | true | true |
| TIM1 break interrupt and TIM9 global interrupt | false | true | true |
| TIM2 global interrupt | false | true | true |
| USART1 global interrupt | false | true | true |
| TIM5 global interrupt | false | true | true |

*** User modified value**

# 9. System Views

9.1. Category view

*9.1.1. Current*



# 10. Software Pack Report

## 10.1. Software Pack selected

| Vendor | Name | Version | Component |
|---|---|---|---|
| ARM | CMSIS | 5.7.0 | Class : CMSIS<br>Group : CORE<br>Version : 5.4.0<br>Class : CMSIS<br>Group : DSP<br>Variant : Library<br>Version : 1.8.0 |

# 11. Docs & Resources

| Type | Link |
|---|---|
| Datasheet | http://www.st.com/resource/en/datasheet/DM00037051.pdf |
| Reference manual | http://www.st.com/resource/en/reference_manual/DM00031020.pdf |
| Programming manual | http://www.st.com/resource/en/programming_manual/DM00046982.pdf |
| Errata sheet | http://www.st.com/resource/en/errata_sheet/DM00037591.pdf |
| Application note | http://www.st.com/resource/en/application_note/CD00167594.pdf |
| Application note | http://www.st.com/resource/en/application_note/CD00211314.pdf |
| Application note | http://www.st.com/resource/en/application_note/CD00249778.pdf |
| Application note | http://www.st.com/resource/en/application_note/CD00259245.pdf |
| Application note | http://www.st.com/resource/en/application_note/CD00264321.pdf |
| Application note | http://www.st.com/resource/en/application_note/CD00264342.pdf |
| Application note | http://www.st.com/resource/en/application_note/CD00264379.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00024853.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00025071.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00040802.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00040808.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00042534.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00046011.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00050879.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00072315.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00073742.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00073853.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00080497.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00081379.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00115714.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00123028.pdf |

| | |
|---|---|
| Application note | http://www.st.com/resource/en/application_note/DM00129215.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00154959.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00160482.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00213525.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00220769.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00257177.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00272912.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00226326.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00236305.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00263732.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00281138.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00296349.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00327191.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00354244.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00373474.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00315319.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00380469.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00395696.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00431633.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00493651.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00536349.pdf |
| Application note | http://www.st.com/resource/en/application_note/DM00725181.pdf |