
STM32
CubeMX

# 1. Description

## 1.1. Project

| | |
|---|---|
| Project Name | F3_UART_Tx_DMA |
| Board Name | custom |
| Generated with: | STM32CubeMX 6.9.1 |
| Date | 09/07/2023 |

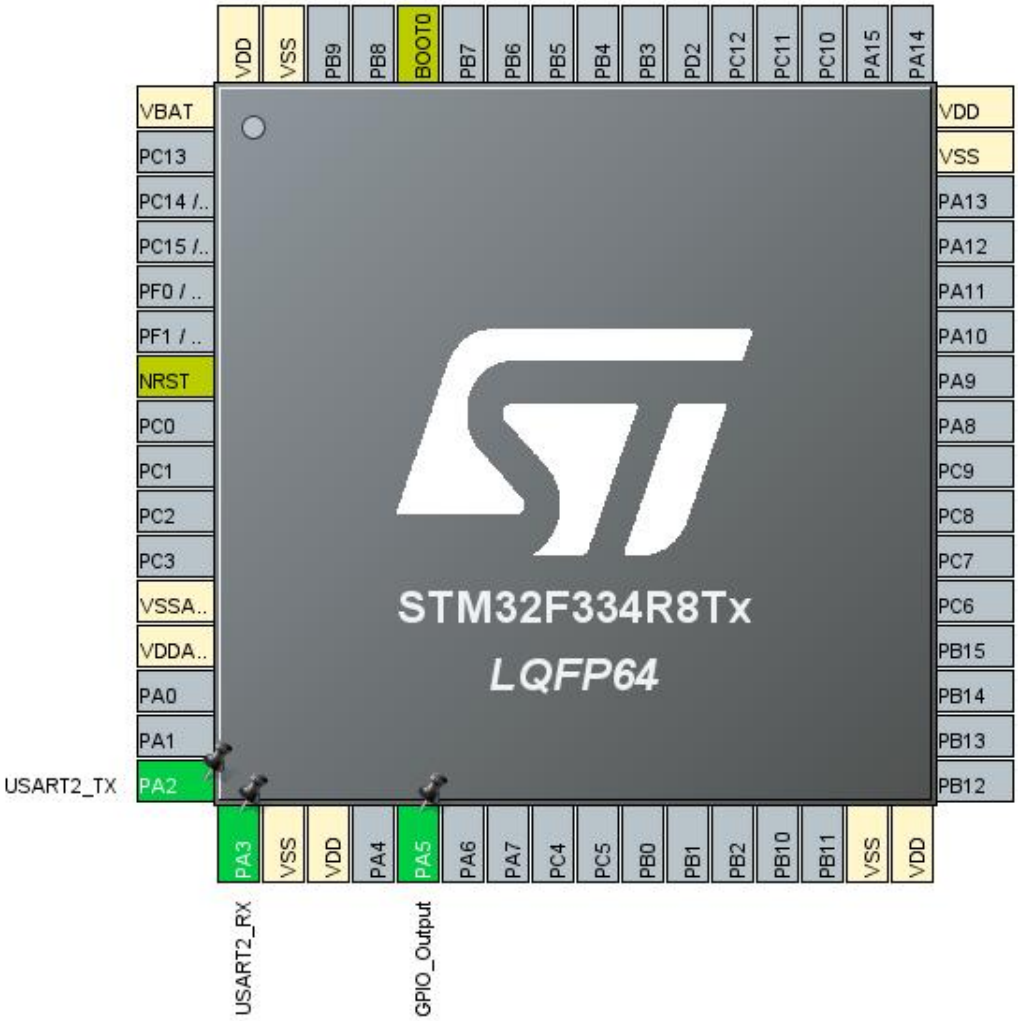
## 1.2. MCU

| | |
|---|---|
| MCU Series | STM32F3 |
| MCU Line | STM32F334 |
| MCU name | STM32F334R8Tx |
| MCU Package | LQFP64 |
| MCU Pin number | 64 |

## 1.3. Core(s) information

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

## 2. Pinout Configuration

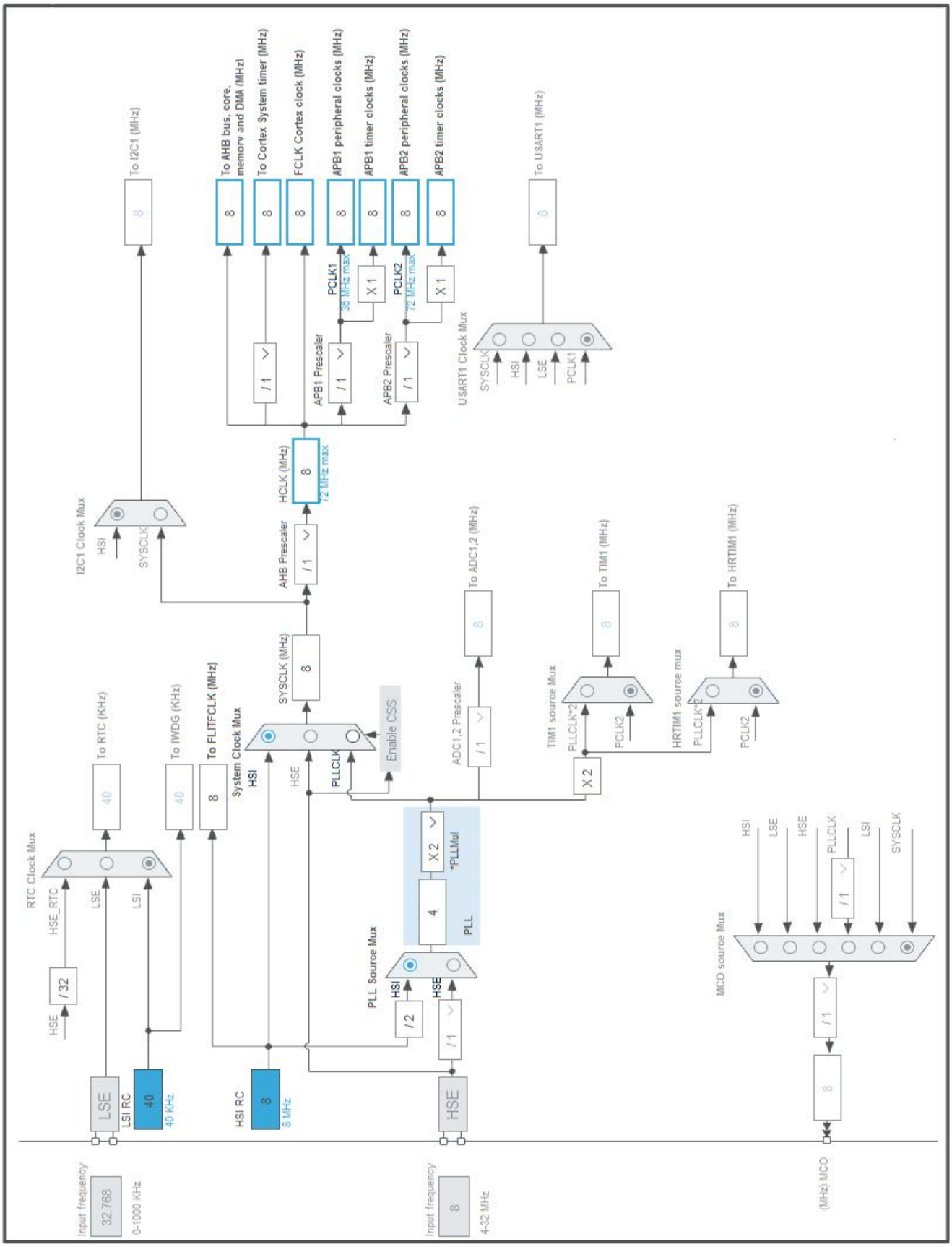


# 3. Pins Configuration

| Pin Number LQFP64 | Pin Name (function after reset) | Pin Type | Alternate Function(s) | Label |
|---|---|---|---|---|
| 1 | VBAT | Power | | |
| 7 | NRST | Reset | | |
| 12 | VSSA/VREF- | Power | | |
| 13 | VDDA/VREF+ | Power | | |
| 16 | PA2 | I/O | USART2_TX | |
| 17 | PA3 | I/O | USART2_RX | |
| 18 | VSS | Power | | |
| 19 | VDD | Power | | |
| 21 | PA5 * | I/O | GPIO_Output | |
| 31 | VSS | Power | | |
| 32 | VDD | Power | | |
| 47 | VSS | Power | | |
| 48 | VDD | Power | | |
| 60 | BOOT0 | Boot | | |
| 63 | VSS | Power | | |
| 64 | VDD | Power | | |

* The pin is affected with an I/O function

# 4. Clock Tree Configuration



# 5. Software Project

## 5.1. Project Settings

| Name | Value |
|---|---|
| Project Name | F3_UART_Tx_DMA |
| Project Folder | C:\Users\Rajkanna\STM32CubeIDE\Aug_Live\F3_UART_Tx_DMA |
| Toolchain / IDE | STM32CubeIDE |
| Firmware Package Name and Version | STM32Cube FW_F3 V1.11.4 |
| 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 | SystemClock_Config | RCC |
| 2 | MX_GPIO_Init | GPIO |
| 3 | MX_DMA_Init | DMA |
| 4 | MX_USART2_UART_Init | USART2 |

# 1. Power Consumption Calculator report

## 1.1. Microcontroller Selection

| | |
|---|---|
| Series | STM32F3 |
| Line | STM32F334 |
| MCU | STM32F334R8Tx |
| Datasheet | DS9994 Rev6 |

## 1.2. Parameter Selection

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

## 1.3. 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 |

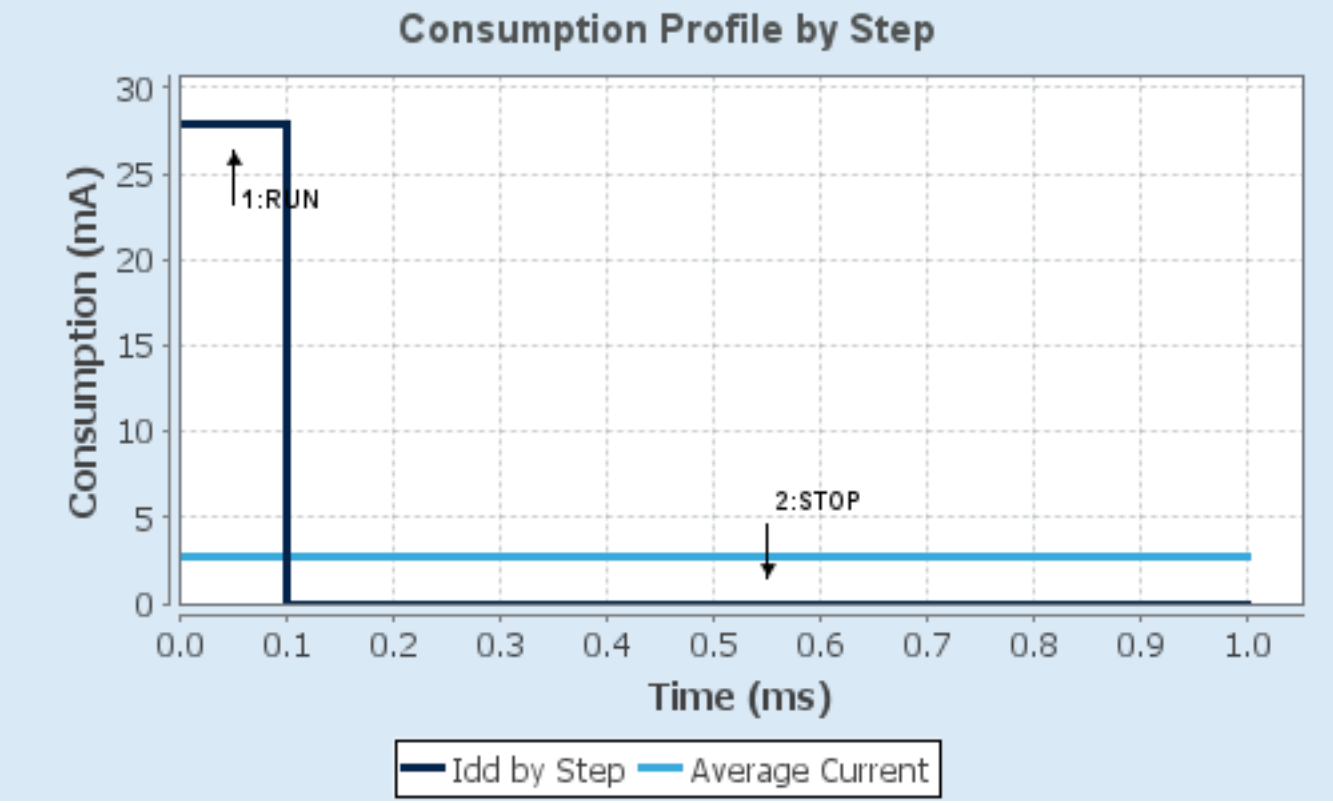
## 1.4. Sequence

| ***Step*** | Step1 | Step2 |
|---|---|---|
| ***Mode*** | RUN | STOP |
| ***Vdd*** | 3.6 | 3.6 |
| ***Voltage Source*** | Battery | Battery |
| ***Range*** | No Scale | No Scale |
| ***Fetch Type*** | RAM | n/a |
| ***CPU Frequency*** | 72 MHz | 0 Hz |
| ***Clock Configuration*** | HSEBYP PLL | Regulator_LP |
| ***Clock Source Frequency*** | 8 MHz | 0 Hz |
| ***Peripherals*** | | |
| ***Additional Cons.*** | 0 mA | 0 mA |
| ***Average Current*** | 27.84 mA | 9.55 µA |
| ***Duration*** | 0.1 ms | 0.9 ms |
| ***DMIPS*** | 90.0 | 0.0 |
| ***Ta Max*** | 100.49 | 105 |
| ***Category*** | In DS Table | In DS Table |

## 1.5. Results

| Sequence Time | 1 ms | Average Current | 2.79 mA |
|---|---|---|---|
| Battery Life | 1 month, 20 days, 5 hours | Average DMIPS | 90.0 DMIPS |

## 1.6. Chart


Consumption Profile by Step
Consumption (mA)
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

# 2. Peripherals and Middlewares Configuration

## 2.1. RCC

### 2.1.1. Parameter Settings:

**System Parameters:**

| | |
|---|---|
| VDD voltage (V) | 3.3 |
| Prefetch Buffer | Enabled |
| Flash Latency(WS) | 0 WS (1 CPU cycle) |

**RCC Parameters:**

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

## 2.2. USART2

**Mode: Asynchronous**

### 2.2.1. Parameter Settings:

**Basic Parameters:**

| | |
|---|---|
| Baud Rate | 38400 |
| Word Length | 8 Bits (including Parity) |
| Parity | None |
| Stop Bits | 1 |

**Advanced Parameters:**

| | |
|---|---|
| Data Direction | Receive and Transmit |
| Over Sampling | 16 Samples |
| Single Sample | Disable |

**Advanced Features:**

| | |
|---|---|
| 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**

# 3. System Configuration

## 3.1. GPIO configuration

| IP | Pin | Signal | GPIO mode | GPIO pull/up pull down | Max Speed | User Label |
|---|---|---|---|---|---|---|
| USART2 | PA2 | USART2_TX | Alternate Function Push Pull | No pull-up and no pull-down | **High *** | |
| | PA3 | USART2_RX | Alternate Function Push Pull | No pull-up and no pull-down | **High *** | |
| GPIO | PA5 | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | |

## 3.2. DMA configuration

| DMA request | Stream | Direction | Priority |
|---|---|---|---|
| USART2_TX | DMA1_Channel7 | Memory To Peripheral | Low |

*USART2_TX: DMA1_Channel7 DMA request Settings:*

| | |
|---|---|
| Mode: | **Circular *** |
| Peripheral Increment: | Disable |
| Memory Increment: | **Enable *** |
| Peripheral Data Width: | Byte |
| Memory Data Width: | Byte |

## 3.3. NVIC configuration

### 3.3.1. 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 | 15 | 0 |
| DMA1 channel7 global interrupt | true | 0 | 0 |
| USART2 global interrupt / USART2 wake-up interrupt through EXT line 26 | true | 0 | 0 |
| PVD interrupt through EXTI line 16 | unused | | |
| Flash global interrupt | unused | | |
| RCC global interrupt | unused | | |
| Floating point unit interrupt | unused | | |

### 3.3.2. NVIC Code generation

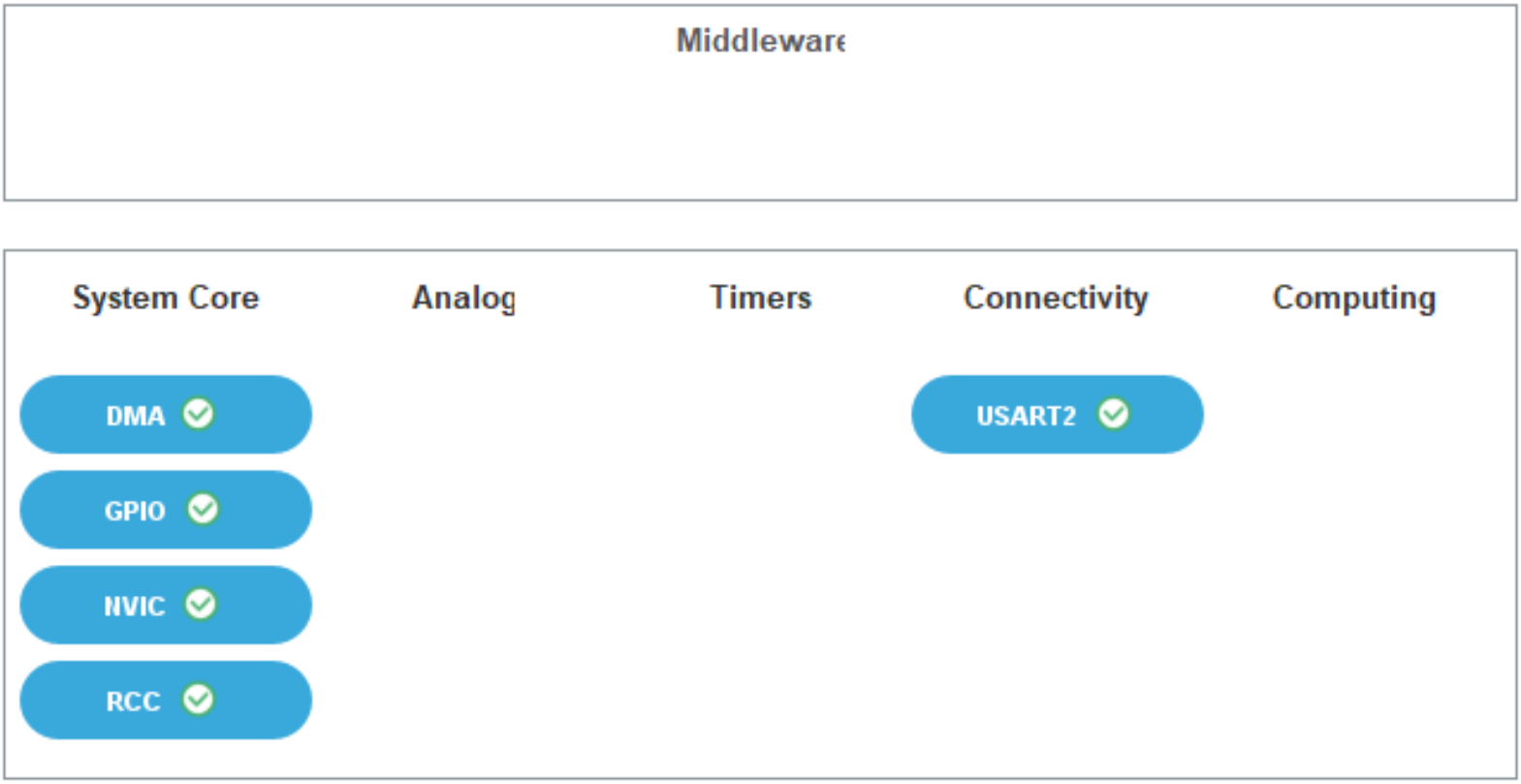
| Enabled interrupt Table | Select for init sequence ordering | Generate IRQ handler | Call HAL handler |
|---|---|---|---|
| Non maskable interrupt | false | true | false |
| Hard fault interrupt | false | true | false |
| Memory management fault | false | true | false |
| Pre-fetch fault, memory access fault | false | true | false |
| Undefined instruction or illegal state | false | true | false |
| System service call via SWI instruction | false | true | false |
| Debug monitor | false | true | false |
| Pendable request for system service | false | true | false |
| System tick timer | false | true | true |
| DMA1 channel7 global interrupt | false | true | true |
| USART2 global interrupt / USART2 wake-up interrupt through EXT line 26 | false | true | true |

*** User modified value**

# 4. System Views

4.1. Category view

*4.1.1. Current*



# 5. Docs & Resources

| Type | Link |
| --- | --- |