

1. Description

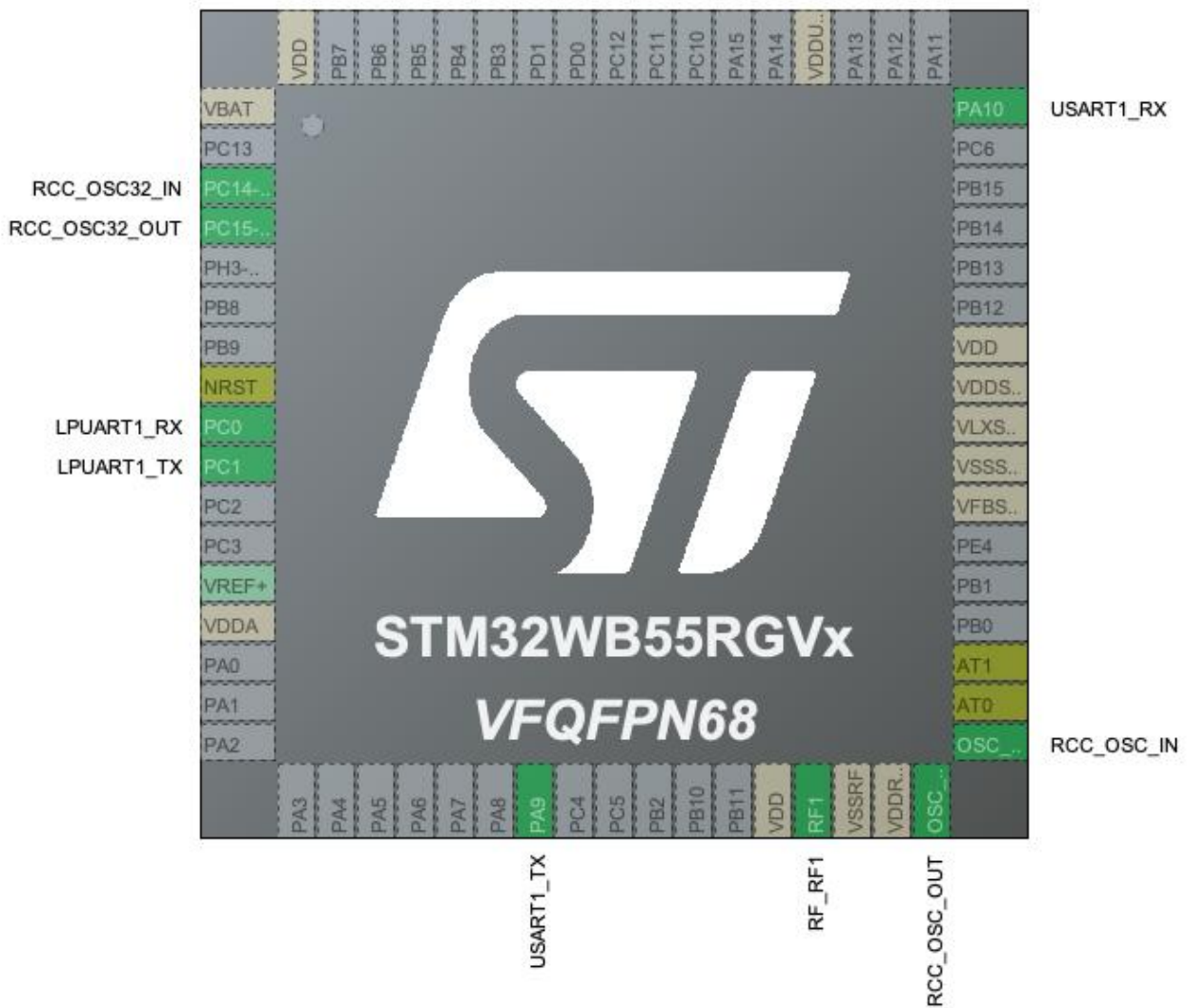
1.1. Project

| | |
|-----------------|-------------------|
| Project Name | proj |
| Board Name | custom |
| Generated with: | STM32CubeMX 5.4.0 |
| Date | 12/09/2019 |

1.2. MCU

| | |
|----------------|---------------|
| MCU Series | STM32WB |
| MCU Line | STM32WBx5 |
| MCU name | STM32WB55RGVx |
| MCU Package | VFQFPN68 |
| MCU Pin number | 68 |

2. Pinout Configuration



3. Pins Configuration

| Pin Number VFQFPN68 | 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 | |
| 8 | NRST | Reset | | |
| 9 | PC0 | I/O | LPUART1_RX | |
| 10 | PC1 | I/O | LPUART1_TX | |
| 14 | VDDA | Power | | |
| 24 | PA9 | I/O | USART1_TX | |
| 30 | VDD | Power | | |
| 31 | RF1 | MonoIO | RF_RF1 | |
| 32 | VSSRF | Power | | |
| 33 | VDDRF | Power | | |
| 34 | OSC_OUT | MonoIO | RCC_OSC_OUT | |
| 35 | OSC_IN | MonoIO | RCC_OSC_IN | |
| 36 | AT0 | NC | | |
| 37 | AT1 | NC | | |
| 41 | VFBSMPS | Power | | |
| 42 | VSSSMPS | Power | | |
| 43 | VLXSMPS | Power | | |
| 44 | VDDSMPS | Power | | |
| 45 | VDD | Power | | |
| 51 | PA10 | I/O | USART1_RX | |
| 55 | VDDUSB | Power | | |
| 68 | VDD | Power | | |

5. Software Project

5.1. Project Settings

| Name | Value |
|-----------------------------------|--|
| Project Name | proj |
| Project Folder | /Users/nazargaman/STM32CubeIDE/work/proj |
| Toolchain / IDE | STM32CubeIDE |
| Firmware Package Name and Version | STM32Cube FW_WB V1.3.0 |

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 |
| 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 | STM32WB |
| Line | STM32WBx5 |
| MCU | STM32WB55RGVx |
| Datasheet | DS11929_Rev3 |

6.2. Parameter Selection

| | |
|-------------|-----|
| Temperature | 25 |
| Vdd | 3.0 |

7. IPs and Middleware Configuration

7.1. GPIO

7.2. HSEM

mode: Activated

7.3. LPUART1

Mode: Asynchronous

7.3.1. Parameter Settings:

Basic Parameters:

| | |
|-------------|---------------------------|
| Baud Rate | 115200 |
| Word Length | 8 Bits (including Parity) |
| Parity | None |
| Stop Bits | 1 |

Advanced Parameters:

| | |
|------------------|-----------------------------|
| Data Direction | Receive and Transmit |
| Single Sample | Disable |
| Prescaler | clock /1 |
| Fifo Mode | FIFO mode disable |
| Txfifo Threshold | 1 eighth full configuration |
| Rxfifo Threshold | 1 eighth full configuration |

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 |

7.4. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

Low Speed Clock (LSE) : Crystal/Ceramic Resonator

7.4.1. Parameter Settings:

System Parameters:

| | |
|-------------------|--------------------|
| VDD voltage (V) | 3.3 |
| Instruction Cache | Enabled |
| Prefetch Buffer | Disabled |
| Data Cache | Enabled |
| Flash Latency(WS) | 1 WS (2 CPU cycle) |

RCC Parameters:

| | |
|--------------------------------|----------|
| HSI Calibration Value | 16 |
| MSI Calibration Value | 0 |
| MSI Auto Calibration | Disabled |
| MSI State | Enabled |
| HSI State | Enabled |
| HSE Startup Timeout Value (ms) | 100 |
| LSE Startup Timeout Value (ms) | 5000 |

Power Parameters:

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

Peripherals Clock Configuration:

| | |
|--|------|
| Generate the peripherals clock configuration | TRUE |
|--|------|

7.5. RF

mode: Activate RF1

7.6. RTC

mode: Activate Clock Source

7.6.1. Parameter Settings:

General:

| | |
|-------------------------------|--------------------------|
| Hour Format | Hourformat 24 |
| Asynchronous Predivider value | CFG_RTC_ASYNCH_PRESCALER |
| Synchronous Predivider value | CFG_RTC_SYNCH_PRESCALER |

7.7. SEQUENCER

mode: Enabled

7.8. SYS

Timebase Source: SysTick

7.9. TINY_LPM

mode: Enabled

7.10. USART1

Mode: Asynchronous

7.10.1. Parameter Settings:

Basic Parameters:

| | |
|-------------|---------------------------|
| Baud Rate | 115200 |
| Word Length | 8 Bits (including Parity) |
| Parity | None |
| Stop Bits | 1 |

Advanced Parameters:

| | |
|------------------|-----------------------------|
| Data Direction | Receive and Transmit |
| Over Sampling | 8 Samples |
| Single Sample | Disable |
| ClockPrescaler | clock /1 |
| Fifo Mode | Disable |
| Txfifo Threshold | 1 eighth full configuration |
| Rxfifo Threshold | 1 eighth full configuration |

Advanced Features:

| | |
|-------------------------------|---------|
| 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 |

7.11. STM32_WPAN

mode: THREAD

7.11.1. THREAD Applications and Services:

THREAD application type:

Thread Application

Full Thread Device with Command Line Interface

7.11.2. Configuration:

HW Timer Server:

| | |
|---|---------------------------|
| CFG_HW_TS_MAX_NBR_CONCURRENT_TIMER | 6 |
| CFG_HW_TS_NVIC_RTC_WAKEUP_IT_PREEMPTPRIO | 3 |
| CFG_HW_TS_NVIC_RTC_WAKEUP_IT_SUBPRIO | 0 |
| CFG_HW_TS_USE_PRIMASK_AS_CRITICAL_SECTION | 1 |
| CFG_HW_TS_RTC_HANDLER_MAX_DELAY | (10 * (LSI_VALUE/1000)) |
| CFG_HW_TS_RTC_WAKEUP_HANDLER_ID | RTC_WKUP_IRQn |

HW UART:

| | |
|---------------------------------|------------------|
| CFG_HW_LPUART1_ENABLED | Enabled * |
| CFG_HW_LPUART1_DMA_TX_SUPPORTED | Disabled |
| CFG_HW_USART1_ENABLED | Enabled * |
| CFG_HW_USART1_DMA_TX_SUPPORTED | Disabled |

Generic parameters:

| | |
|------------------------|----------|
| CFG_HW_RESET_BY_FW | Enabled |
| CFG_LPM_SUPPORTED | Disabled |
| CFG_FULL_LOW_POWER | Disabled |
| CFG_DEBUGGER_SUPPORTED | Enabled |
| CFG_DEBUG_TRACE | Enabled |
| CFG_DEBUG_TRACE_LIGHT | Disabled |
| CFG_DEBUG_TRACE_FULL | Disabled |

Application parameters:

| | |
|--------------------------------|---------------------|
| CFG_DEBUG_TRACE_UART | hw_lpuart1 * |
| CFG_CLI_UART | hw_uart1 * |
| APPLI_CONFIG_LOG_LEVEL | LOG_LEVEL_INFO |
| APPLI_PRINT_FILE_FUNC_LINES | 0 |
| CFG_TL_EVT_QUEUE_LENGTH | 5 |
| CFG_TL_MOST_EVENT_PAYLOAD_SIZE | 27 |

7.11.3. Parameter Settings:

No CTS for USART1

* User modified value

8. System Configuration

8.1. GPIO configuration

| IP | Pin | Signal | GPIO mode | GPIO pull/up pull down | Max Speed | User Label |
|---------|----------------|---------------|------------------------------|-----------------------------|-----------|------------|
| LPUART1 | PC0 | LPUART1_RX | Alternate Function Push Pull | No pull-up and no pull-down | Low | |
| | PC1 | LPUART1_TX | Alternate Function Push Pull | No pull-up and no pull-down | Low | |
| 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 | |
| | OSC_OUT | RCC_OSC_OUT | n/a | n/a | n/a | |
| | OSC_IN | RCC_OSC_IN | n/a | n/a | n/a | |
| RF | RF1 | RF_RF1 | n/a | n/a | n/a | |
| USART1 | PA9 | USART1_TX | Alternate Function Push Pull | No pull-up and no pull-down | Low | |
| | PA10 | USART1_RX | Alternate Function Push Pull | No pull-up and no pull-down | Low | |

8.2. DMA configuration

nothing configured in DMA service

8.3. 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 |
| Prefetch 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 |
| PVD/PVM0/PVM2 interrupts through EXTI lines 16/31/33 | | unused | |
| Flash global interrupt | | unused | |
| RCC global interrupt | | unused | |
| CPU2 SEV interrupt through EXTI line 40 and PWR CPU2 HOLD wake-up interrupt | | unused | |
| USART1 global interrupt | | unused | |
| LPUART1 global interrupt | | unused | |
| PWR switching on the fly, end of BLE activity, end of 802.15.4 activity, end of critical radio phase interrupt | | unused | |
| HSEM global interrupt | | unused | |
| FPU global interrupt | | unused | |

* User modified value

9. Software Pack Report