

1. Description

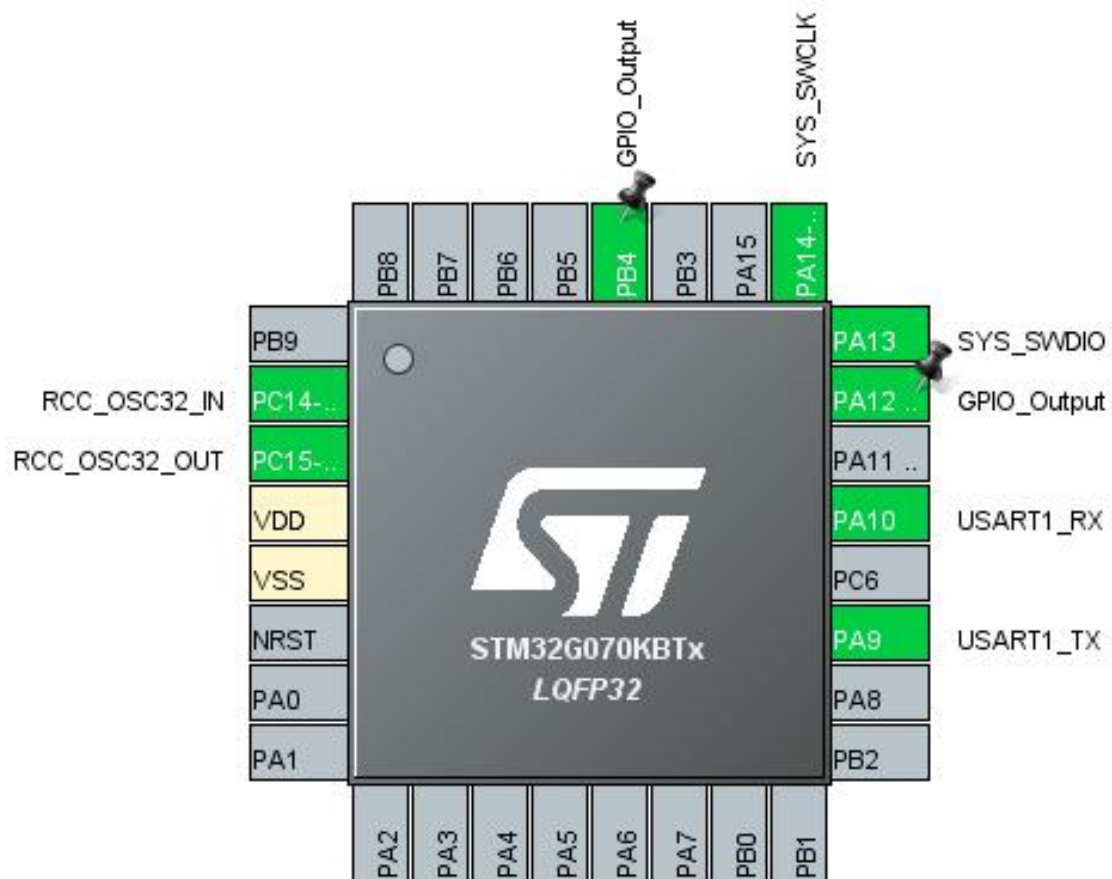
1.1. Project

| | |
|-----------------|-------------------|
| Project Name | STM32G070_DS18B20 |
| Board Name | custom |
| Generated with: | STM32CubeMX 5.6.1 |
| Date | 08/03/2020 |

1.2. MCU

| | |
|----------------|----------------------|
| MCU Series | STM32G0 |
| MCU Line | STM32G0x0 Value line |
| MCU name | STM32G070KBTx |
| MCU Package | LQFP32 |
| MCU Pin number | 32 |

2. Pinout Configuration

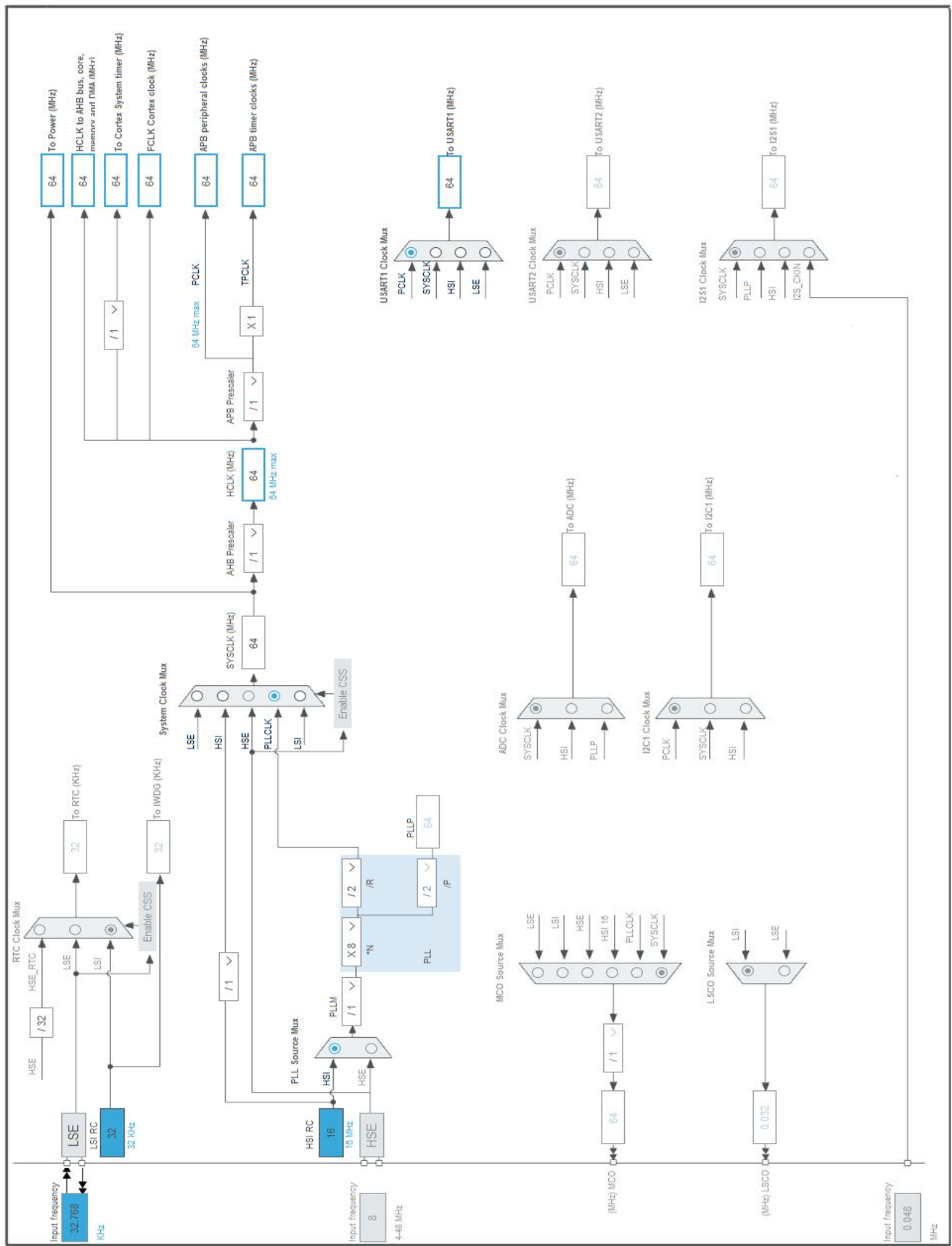


3. Pins Configuration

| Pin Number LQFP32 | Pin Name (function after reset) | Pin Type | Alternate Function(s) | Label |
|----------------------|---------------------------------------|----------|--------------------------|-------|
| 2 | PC14-OSC32_IN (PC14) | I/O | RCC_OSC32_IN | |
| 3 | PC15-OSC32_OUT (PC15) | I/O | RCC_OSC32_OUT | |
| 4 | VDD | Power | | |
| 5 | VSS | Power | | |
| 19 | PA9 | I/O | USART1_TX | |
| 21 | PA10 | I/O | USART1_RX | |
| 23 | PA12 [PA10] * | I/O | GPIO_Output | |
| 24 | PA13 | I/O | SYS_SWDIO | |
| 25 | PA14-BOOT0 | I/O | SYS_SWCLK | |
| 28 | PB4 * | I/O | GPIO_Output | |

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. Software Project

5.1. Project Settings

| Name | Value |
|-----------------------------------|--|
| Project Name | STM32G070_DS18B20 |
| Project Folder | D:\STM32G070_project\STM32G070_DS18B20 |
| Toolchain / IDE | Makefile |
| Firmware Package Name and Version | STM32Cube FW_G0 V1.3.0 |

5.2. Code Generation Settings

| Name | Value |
|---|---|
| STM32Cube MCU packages and embedded software | Copy all used libraries into the project folder |
| Generate peripheral initialization as a pair of '.c/.h' files | Yes |
| 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 | STM32G0 |
| Line | STM32G0x0 Value line |
| MCU | STM32G070KBTx |
| Datasheet | DS12766_Rev0 |

6.2. Parameter Selection

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

6.3. Battery Selection

| | |
|-------------------|------------------|
| Battery | Li-SOCL2(AAA700) |
| Capacity | 700.0 mAh |
| Self Discharge | 0.08 %/month |
| Nominal Voltage | 3.6 V |
| Max Cont Current | 10.0 mA |
| Max Pulse Current | 30.0 mA |
| Cells in series | 1 |
| Cells in parallel | 1 |

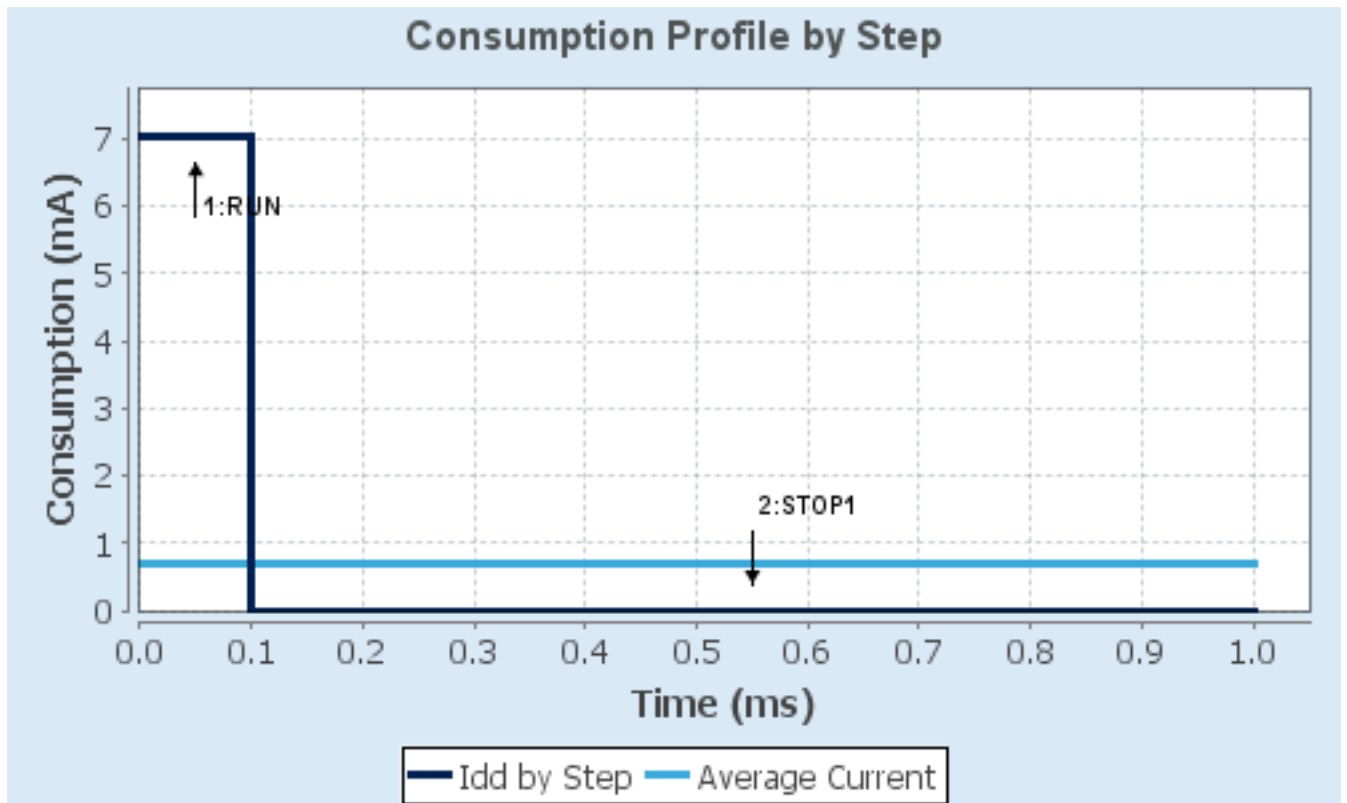
6.4. Sequence

| | | |
|-------------------------------|-------------|-----------------|
| Step | Step1 | Step2 |
| Mode | RUN | STOP1 |
| Vdd | 3.0 | 3.0 |
| Voltage Source | Battery | Battery |
| Range | Range1-High | NoRange |
| Fetch Type | FLASH | Flash-PowerDown |
| CPU Frequency | 64 MHz | 16 MHz |
| Clock Configuration | HSI PLL | HSI |
| Clock Source Frequency | 16 MHz | 16 MHz |
| Peripherals | | |
| Additional Cons. | 0 mA | 0 mA |
| Average Current | 7.04 mA | 3.74 μ A |
| Duration | 0.1 ms | 0.9 ms |
| DMIPS | 80.0 | 0.0 |
| Ta Max | 128.39 | 130 |
| Category | In DS Table | In DS Table |

6.5. RESULTS

| | | | |
|---------------|-------------------------------|-----------------|----------------|
| Sequence Time | 1 ms | Average Current | 707.37 μ A |
| Battery Life | 1 month, 10 days, 18 hours | Average DMIPS | 80.0 DMIPS |

6.6. Chart



7. IPs and Middleware Configuration

7.1. GPIO

7.2. RCC

Low Speed Clock (LSE) : Crystal/Ceramic Resonator

7.2.1. Parameter Settings:

System Parameters:

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

RCC Parameters:

| | |
|--------------------------------|------|
| HSI Calibration Value | 64 |
| 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 |
|--|------|

7.3. SYS

mode: Debug

Timebase Source: SysTick

mode: save power of non-active UCPD - deactive Dead Battery pull-up

7.4. USART1

Mode: Asynchronous

7.4.1. 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 | 16 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 |

* User modified value

8. System Configuration

8.1. GPIO configuration

| IP | Pin | Signal | GPIO mode | GPIO pull/up pull down | Max Speed | User Label |
|--------|-----------------------|---------------|------------------------------|-----------------------------|-----------|------------|
| RCC | PC14-OSC32_IN (PC14) | RCC_OSC32_IN | n/a | n/a | n/a | |
| | PC15-OSC32_OUT (PC15) | RCC_OSC32_OUT | n/a | n/a | n/a | |
| SYS | PA13 | SYS_SWDIO | n/a | n/a | n/a | |
| | PA14-BOOT0 | SYS_SWCLK | 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 | |
| GPIO | PA12 [PA10] | GPIO_Output | Output Push Pull | No pull-up and no pull-down | Low | |
| | PB4 | GPIO_Output | Output 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 |
| System service call via SWI instruction | true | 0 | 0 |
| Pendable request for system service | true | 0 | 0 |
| System tick timer | true | 0 | 0 |
| Flash global interrupt | unused | | |
| RCC global interrupt | unused | | |
| USART1 global interrupt / USART1 wake-up interrupt through EXTI line 25 | unused | | |

* User modified value

9. Predefined Views - Category view : Current

10. Software Pack Report