# 1. Description

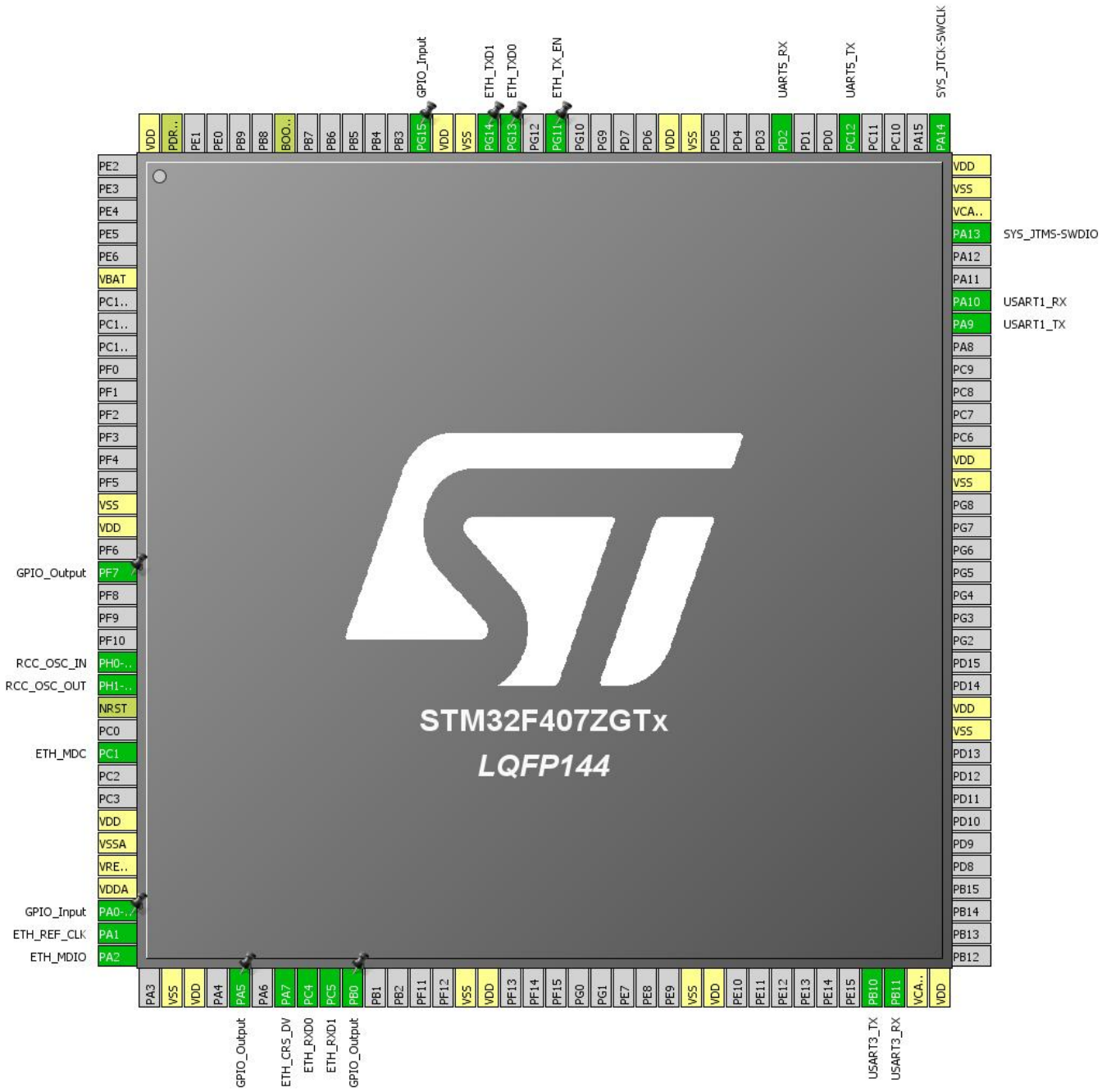
## 1.1. Project

| | |
|---|---|
| Project Name | ZR60_v1 |
| Board Name | ZR60_v1.0 |
| Generated with: | STM32CubeMX 4.22.0 |
| Date | 02/25/2019 |

## 1.2. MCU

| | |
|---|---|
| MCU Series | STM32F4 |
| MCU Line | STM32F407/417 |
| MCU name | STM32F407ZGTx |
| MCU Package | LQFP144 |
| MCU Pin number | 144 |

# 2. Pinout Configuration



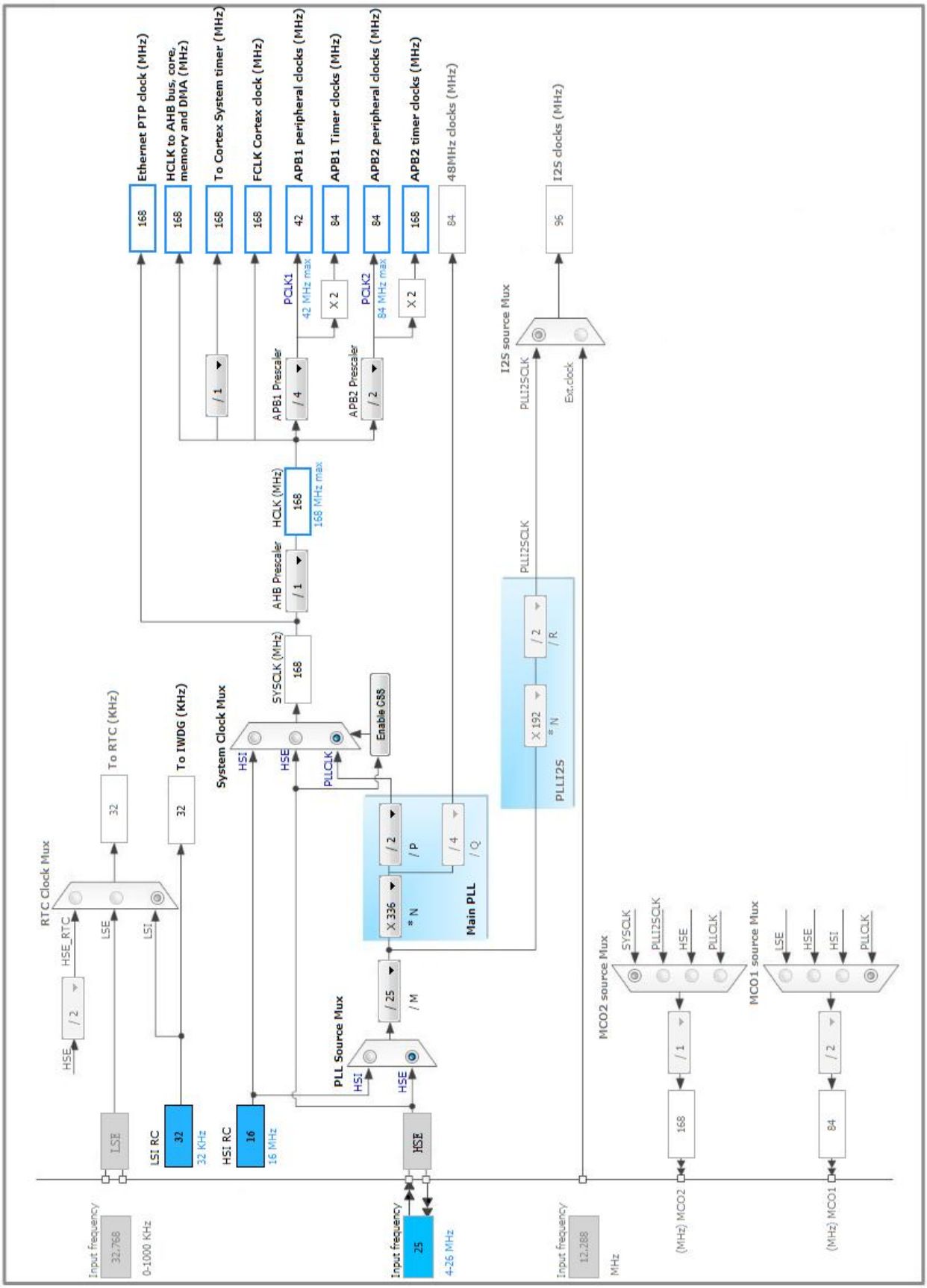
# 3. Pins Configuration

| Pin Number LQFP144 | Pin Name (function after reset) | Pin Type | Alternate Function(s) | Label |
|---|---|---|---|---|
| 6 | VBAT | Power | | |
| 16 | VSS | Power | | |
| 17 | VDD | Power | | |
| 19 | PF7 * | I/O | GPIO_Output | |
| 23 | PH0-OSC_IN | I/O | RCC_OSC_IN | |
| 24 | PH1-OSC_OUT | I/O | RCC_OSC_OUT | |
| 25 | NRST | Reset | | |
| 27 | PC1 | I/O | ETH_MDC | |
| 30 | VDD | Power | | |
| 31 | VSSA | Power | | |
| 32 | VREF+ | Power | | |
| 33 | VDDA | Power | | |
| 34 | PA0-WKUP * | I/O | GPIO_Input | |
| 35 | PA1 | I/O | ETH_REF_CLK | |
| 36 | PA2 | I/O | ETH_MDIO | |
| 38 | VSS | Power | | |
| 39 | VDD | Power | | |
| 41 | PA5 * | I/O | GPIO_Output | |
| 43 | PA7 | I/O | ETH_CRS_DV | |
| 44 | PC4 | I/O | ETH_RXD0 | |
| 45 | PC5 | I/O | ETH_RXD1 | |
| 46 | PB0 * | I/O | GPIO_Output | |
| 51 | VSS | Power | | |
| 52 | VDD | Power | | |
| 61 | VSS | Power | | |
| 62 | VDD | Power | | |
| 69 | PB10 | I/O | USART3_TX | |
| 70 | PB11 | I/O | USART3_RX | |
| 71 | VCAP_1 | Power | | |
| 72 | VDD | Power | | |
| 83 | VSS | Power | | |
| 84 | VDD | Power | | |
| 94 | VSS | Power | | |
| 95 | VDD | Power | | |
| 101 | PA9 | I/O | USART1_TX | |
| 102 | PA10 | I/O | USART1_RX | |

| Pin Number LQFP144 | Pin Name (function after reset) | Pin Type | Alternate Function(s) | Label |
|---|---|---|---|---|
| 105 | PA13 | I/O | SYS_JTMS-SWDIO | |
| 106 | VCAP_2 | Power | | |
| 107 | VSS | Power | | |
| 108 | VDD | Power | | |
| 109 | PA14 | I/O | SYS_JTCK-SWCLK | |
| 113 | PC12 | I/O | UART5_TX | |
| 116 | PD2 | I/O | UART5_RX | |
| 120 | VSS | Power | | |
| 121 | VDD | Power | | |
| 126 | PG11 | I/O | ETH_TX_EN | |
| 128 | PG13 | I/O | ETH_TXD0 | |
| 129 | PG14 | I/O | ETH_TXD1 | |
| 130 | VSS | Power | | |
| 131 | VDD | Power | | |
| 132 | PG15 * | I/O | GPIO_Input | |
| 138 | BOOT0 | Boot | | |
| 143 | PDR_ON | Reset | | |
| 144 | VDD | Power | | |

* The pin is affected with an I/O function

# 4. Clock Tree Configuration



# 5. IPs and Middleware Configuration

## 5.1. ETH

**Mode: RMII**

### 5.1.1. Parameter Settings:

**Advanced : Ethernet Media Configuration:**

| | |
|---|---|
| Auto Negotiation | Enabled |

**General : Ethernet Configuration:**

| | |
|---|---|
| Ethernet MAC Address | **00:80:E1:A8:EE:01 *** |
| PHY Address | **0 *** |

**Ethernet Basic Configuration:**

| | |
|---|---|
| Rx Mode | Interrupt Mode |
| TX IP Header Checksum Computation | By hardware |

### 5.1.2. Advanced Parameters:

**External PHY Configuration:**

| | |
|---|---|
| PHY | **user PHY *** |
| PHY Address Value | 0 |
| PHY name | **LAN8720 *** |
| PHY Reset delay these values are based on a 1 ms Systick interrupt | **0x000000FF *** |
| PHY Configuration delay | **0x00000FFF *** |
| PHY Read TimeOut | **0x0000FFFF *** |
| PHY Write TimeOut | **0x0000FFFF *** |

**Common : External PHY Configuration:**

| | |
|---|---|
| Transceiver Basic Control Register | **0x00 *** |
| Transceiver Basic Status Register | **0x01 *** |
| PHY Reset | **0x8000 *** |
| Select loop-back mode | **0x4000 *** |
| Set the full-duplex mode at 100 Mb/s | **0x2100 *** |
| Set the half-duplex mode at 100 Mb/s | **0x2000 *** |
| Set the full-duplex mode at 10 Mb/s | **0x0100 *** |
| Set the half-duplex mode at 10 Mb/s | **0x0000 *** |

| | |
|---|---|
| Enable auto-negotiation function | **0x1000 *** |
| Restart auto-negotiation function | **0x0200 *** |
| Select the power down mode | **0x0800 *** |
| Isolate PHY from MII | **0x0400 *** |
| Auto-Negotiation process completed | **0x0020 *** |
| Valid link established | **0x0004 *** |
| Jabber condition detected | **0x0002 *** |

**Extended : External PHY Configuration:**

| | |
|---|---|
| PHY special control/status register Offset | **31 *** |
| PHY Speed mask | **0x0004 *** |
| PHY Duplex mask | **0x0010 *** |

## *5.2. IWDG*

**mode: Activated**

### 5.2.1. Parameter Settings:

**Clocking:**

| | |
|---|---|
| IWDG counter clock prescaler | **64 *** |
| IWDG down-counter reload value | **625 *** |

## *5.3. RCC*

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

### 5.3.1. Parameter Settings:

**System Parameters:**

| | |
|---|---|
| VDD voltage (V) | 3.3 |
| Instruction Cache | Enabled |
| Prefetch Buffer | Enabled |
| Data Cache | Enabled |
| Flash Latency(WS) | 5 WS (6 CPU cycle) |

**RCC Parameters:**

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

| | |
|---|---|
| LSE Startup Timout Value (ms) | 5000 |

**Power Parameters:**

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

## *5.4. SYS*

**Debug: Serial Wire**

**Timebase Source: SysTick**

## *5.5. UART5*

**Mode: Asynchronous**

### 5.5.1. 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 |

## *5.6. USART1*

**Mode: Asynchronous**

### 5.6.1. Parameter Settings:

**Basic Parameters:**

| | |
|---|---|
| Baud Rate | **1000000 *** |
| Word Length | 8 Bits (including Parity) |
| Parity | None |
| Stop Bits | 1 |

**Advanced Parameters:**

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

## 5.7. USART3

**Mode: Asynchronous**

### 5.7.1. 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 |

## 5.8. FREERTOS

**mode: Enabled**

### 5.8.1. Config parameters:

**Versions:**

| | |
|---|---|
| FreeRTOS version | 9.0.0 |
| CMSIS-RTOS version | 1.02 |

**Kernel settings:**

| | |
|---|---|
| USE_PREEMPTION | Enabled |
| CPU_CLOCK_HZ | SystemCoreClock |
| TICK_RATE_HZ | 1000 |
| MAX_PRIORITIES | 7 |
| MINIMAL_STACK_SIZE | 128 |
| MAX_TASK_NAME_LEN | 16 |
| USE_16_BIT_TICKS | Disabled |
| IDLE_SHOULD_YIELD | Enabled |
| USE_MUTEXES | Enabled |
| USE_RECURSIVE_MUTEXES | Disabled |
| USE_COUNTING_SEMAPHORES | Disabled |
| QUEUE_REGISTRY_SIZE | 8 |
| USE_APPLICATION_TASK_TAG | Disabled |

| | |
|---|---|
| ENABLE_BACKWARD_COMPATIBILITY | Enabled |
| USE_PORT_OPTIMISED_TASK_SELECTION | Enabled |
| USE_TICKLESS_IDLE | Disabled |
| USE_TASK_NOTIFICATIONS | Enabled |

**Memory management settings:**

| | |
|---|---|
| Memory Allocation | Dynamic |
| TOTAL_HEAP_SIZE | **25360 *** |
| Memory Management scheme | heap_4 |

**Hook function related definitions:**

| | |
|---|---|
| USE_IDLE_HOOK | Disabled |
| USE_TICK_HOOK | Disabled |
| USE_MALLOC_FAILED_HOOK | Disabled |
| USE_DAEMON_TASK_STARTUP_HOOK | Disabled |
| CHECK_FOR_STACK_OVERFLOW | Disabled |

**Run time and task stats gathering related definitions:**

| | |
|---|---|
| GENERATE_RUN_TIME_STATS | Disabled |
| USE_TRACE_FACILITY | Disabled |
| USE_STATS_FORMATTING_FUNCTIONS | Disabled |

**Co-routine related definitions:**

| | |
|---|---|
| USE_CO_ROUTINES | Disabled |
| MAX_CO_ROUTINE_PRIORITIES | 2 |

**Software timer definitions:**

| | |
|---|---|
| USE_TIMERS | Disabled |

**Interrupt nesting behaviour configuration:**

| | |
|---|---|
| LIBRARY_LOWEST_INTERRUPT_PRIORITY | 15 |
| LIBRARY_MAX_SYSCALL_INTERRUPT_PRIORITY | 5 |

## 5.8.2. Include parameters:

**Include definitions:**

| | |
|---|---|
| vTaskPrioritySet | Enabled |
| uxTaskPriorityGet | Enabled |
| vTaskDelete | Enabled |
| vTaskCleanUpResources | Disabled |
| vTaskSuspend | Enabled |
| vTaskDelayUntil | Disabled |
| vTaskDelay | Enabled |
| xTaskGetSchedulerState | Enabled |
| xTaskResumeFromISR | Enabled |
| xQueueGetMutexHolder | Disabled |
| xSemaphoreGetMutexHolder | Disabled |

| | |
|---|---|
| pcTaskGetTaskName | Disabled |
| uxTaskGetStackHighWaterMark | Disabled |
| xTaskGetCurrentTaskHandle | Disabled |
| eTaskGetState | Disabled |
| xEventGroupSetBitFromISR | Disabled |
| xTimerPendFunctionCall | Disabled |
| xTaskAbortDelay | Disabled |
| xTaskGetHandle | Disabled |

## *5.9. LWIP*

**mode: Enabled**

Advanced parameters are not listed except if modified by user.

### 5.9.1. General Settings:

**LwIP Version:**

| | |
|---|---|
| LwIP Version (Version of LwIP supported by CubeMX ** CubeMX specific **) | 2.0.0 |

**IPv4 - DHCP Option:**

| | |
|---|---|
| LWIP_DHCP (DHCP Module) | Enabled |

**RTOS Settings:**

| | |
|---|---|
| WITH_RTOS (Use FREERTOS ** CubeMX specific **) | Enabled |

**Protocols Options:**

| | |
|---|---|
| LWIP_ICMP (ICMP Module Activation) | Enabled |
| LWIP_IGMP (IGMP Module) | Disabled |
| LWIP_DNS (DNS Module) | **Enabled *** |
| LWIP_UDP (UDP Module) | Enabled |
| MEMP_NUM_UDP_PCB (Number of UDP Connections) | **10 *** |
| LWIP_TCP (TCP Module) | Enabled |
| MEMP_NUM_TCP_PCB (Number of TCP Connections) | 5 |

### 5.9.2. Key Options:

**Infrastructure - OS Awarness Option:**

| | |
|---|---|
| NO_SYS (OS Awarness) | OS Used |

**Infrastructure - Timers Options:**

| | |
|---|---|
| LWIP_TIMERS (Use Support For sys_timeout) | Enabled |

**Infrastructure - Core Locking and MPU Options:**

| | |
|---|---|
| SYS_LIGHTWEIGHT_PROT (Memory Functions Protection) | Enabled |

### Infrastructure - Heap and Memory Pools Options:

| | |
|---|---|
| MEM_SIZE (Heap Memory Size) | **21760 *** |

### Infrastructure - Internal Memory Pool Sizes:

| | |
|---|---|
| MEMP_NUM_PBUF (Number of Memory Pool struct Pbufs) | 16 |
| MEMP_NUM_RAW_PCB (Number of Raw Protocol Control Blocks) | **12 *** |
| MEMP_NUM_TCP_PCB_LISTEN (Number of Listening TCP Connections) | **2 *** |
| MEMP_NUM_TCP_SEG (Number of TCP Segments simultaneously queued) | **40 *** |
| MEMP_NUM_LOCALHOSTLIST (Number of Host Entries in the Local Host List) | 1 |

### Pbuf Options:

| | |
|---|---|
| PBUF_POOL_SIZE (Number of Buffers in the Pbuf Pool) | **11 *** |
| PBUF_POOL_BUFSIZE (Size of each pbuf in the pbuf pool) | **1360 *** |

### IPv4 - ARP Options:

| | |
|---|---|
| LWIP_ARP (ARP Functionality) | Enabled |

### Callback - TCP Options:

| | |
|---|---|
| TCP_TTL (Number of Time-To-Live Used by TCP Packets) | 255 |
| TCP_WND (TCP Receive Window Maximum Size) | 5440 |
| TCP_QUEUE_OOSEQ (Allow Out-Of-Order Incoming Packets) | Enabled |
| TCP_MSS (Maximum Segment Size) | **1360 *** |
| TCP_SND_BUF (TCP Sender Buffer Space) | 2720 |
| TCP_SND_QUEUELEN (Number of Packet Buffers Allowed for TCP Sender) | 9 |

### Network Interfaces Options:

| | |
|---|---|
| LWIP_NETIF_STATUS_CALLBACK (Callback Function on Interface Status Changes) | **Enabled *** |
| LWIP_NETIF_LINK_CALLBACK (Callback Function on Interface Link Changes) | **Enabled *** |

### NETIF - Loopback Interface Options:

| | |
|---|---|
| LWIP_NETIF_LOOPBACK (NETIF Loopback) | Disabled |

### Infrastructure - Threading Options:

| | |
|---|---|
| TCPIP_THREAD_NAME (TCPIP Thread Name) | "tcpip_thread" |
| TCPIP_THREAD_STACKSIZE (TCPIP Thread Stack Size) | 1024 |
| TCPIP_THREAD_PRIO (TCPIP Thread Priority Level) | 3 |
| TCPIP_MBOX_SIZE (TCPIP Mailbox Size) | 6 |
| DEFAULT_THREAD_NAME (Default LwIP Thread Name) | "lwIP" |
| DEFAULT_THREAD_STACKSIZE (Default LwIP Thread Stack Size) | 1024 |
| DEFAULT_THREAD_PRIO (Default LwIP Thread Priority Level) | 3 |
| DEFAULT_RAW_RECVMBOX_SIZE (Default Mailbox Size on a NETCONN Raw) | 0 |
| DEFAULT_TCP_RECVMBOX_SIZE (Default Mailbox Size on a NETCONN TCP) | 6 |
| DEFAULT_ACCEPTMBOX_SIZE (Default Mailbox Size for Incoming Connections) | 6 |

### Thread Safe APIs - Netconn Options:

| | |
|---|---|
| LWIP_NETCONN (NETCONN API) | Enabled |

### Thread Safe APIs - Socket Options:

| | |
|---|---|
| LWIP_SOCKET (Socket API) | Enabled |
| LWIP_COMPAT_SOCKETS (BSD-style Socket Functions Names) | 1 |
| LWIP_SOCKET_OFFSET (Socket Offset Number) | 0 |

### 5.9.3. PPP:

**PPP Options:**

| | |
|---|---|
| PPP_SUPPORT (PPP Module) | Disabled |

### 5.9.4. IPv6:

**IPv6 Options:**

| | |
|---|---|
| LWIP_IPV6 (IPv6 Protocol) | Disabled |

### 5.9.5. HTTPD:

**HTTPD Options:**

| | |
|---|---|
| LWIP_HTTPD (LwIP HTTPD Support ** CubeMX specific **) | Disabled |

### 5.9.6. SNMP:

**SNMP Options:**

| | |
|---|---|
| LWIP_SNMP (LwIP SNMP Agent) | Disabled |

### 5.9.7. SNTP:

**SNTP Options:**

| | |
|---|---|
| LWIP_SNTP (LWIP SNTP Support ** CubeMX specific **) | Disabled |

### 5.9.8. MDNS/TFTP:

**MDNS Options:**

| | |
|---|---|
| LWIP_MDNS (Multicast DNS Support ** CubeMX specific **) | Disabled |

**TFTP Options:**

| | |
|---|---|
| LWIP_TFTP (TFTP Support ** CubeMX specific **) | Disabled |

## 5.9.9. Perf/Checks:

### Sanity Checks:

| | |
|---|---|
| LWIP_DISABLE_TCP_SANITY_CHECKS (TCP Sanity Checks) | Disabled |
| LWIP_DISABLE_MEMP_SANITY_CHECKS (MEMP Sanity Checks) | Disabled |

### Performance Options:

| | |
|---|---|
| LWIP_PERF (Performace Testing for LwIP) | Disabled |

## 5.9.10. Statistics:

### Debug - Statistics Options:

| | |
|---|---|
| LWIP_STATS (Statictics Collection) | Disabled |

## 5.9.11. Checksum:

### Infrastructure - Checksum Options:

| | |
|---|---|
| CHECKSUM_BY_HARDWARE (Hardware Checksum ** CubeMX specific **) | Disabled |
| LWIP_CHECKSUM_CTRL_PER_NETIF (Generate/Check Checksum per Netif) | Disabled |
| CHECKSUM_GEN_IP (Generate Software Checksum for Outgoing IP Packets) | Disabled |
| CHECKSUM_GEN_UDP (Generate Software Checksum for Outgoing UDP Packets) | Disabled |
| CHECKSUM_GEN_TCP (Generate Software Checksum for Outgoing TCP Packets) | Disabled |
| CHECKSUM_GEN_ICMP (Generate Software Checksum for Outgoing ICMP Packets) | Disabled |
| CHECKSUM_GEN_ICMP6 (Generate Software Checksum for Outgoing ICMP6 Packets) | Disabled |
| CHECKSUM_CHECK_IP (Generate Software Checksum for Incoming IP Packets) | Disabled |
| CHECKSUM_CHECK_UDP (Generate Software Checksum for Incoming UDP Packets) | Disabled |
| CHECKSUM_CHECK_TCP (Generate Software Checksum for Incoming TCP Packets) | Disabled |
| CHECKSUM_CHECK_ICMP (Generate Software Checksum for Incoming ICMP Packets) | Disabled |
| CHECKSUM_CHECK_ICMP6 (Generate Software Checksum for Incoming ICMP6 Packets) | Disabled |

## 5.9.12. Debug:

### LwIP Main Debugging Options:

| | |
|---|---|
| LWIP_DBG_MIN_LEVEL (Minimum Level) | All |

*** User modified value**

# 6. System Configuration

## 6.1. GPIO configuration

| IP | Pin | Signal | GPIO mode | GPIO pull/up pull down | Max Speed | User Label |
|---|---|---|---|---|---|---|
| ETH | PC1 | ETH_MDC | Alternate Function Push Pull | No pull-up and no pull-down | **Very High** * | |
| | PA1 | ETH_REF_CLK | Alternate Function Push Pull | No pull-up and no pull-down | **Very High** * | |
| | PA2 | ETH_MDIO | Alternate Function Push Pull | No pull-up and no pull-down | **Very High** * | |
| | PA7 | ETH_CRS_DV | Alternate Function Push Pull | No pull-up and no pull-down | **Very High** * | |
| | PC4 | ETH_RXD0 | Alternate Function Push Pull | No pull-up and no pull-down | **Very High** * | |
| | PC5 | ETH_RXD1 | Alternate Function Push Pull | No pull-up and no pull-down | **Very High** * | |
| | PG11 | ETH_TX_EN | Alternate Function Push Pull | No pull-up and no pull-down | **Very High** * | |
| | PG13 | ETH_TXD0 | Alternate Function Push Pull | No pull-up and no pull-down | **Very High** * | |
| | PG14 | ETH_TXD1 | Alternate Function Push Pull | No pull-up and no pull-down | **Very High** * | |
| RCC | PH0-OSC_IN | RCC_OSC_IN | n/a | n/a | n/a | |
| | PH1-OSC_OUT | RCC_OSC_OUT | n/a | n/a | n/a | |
| SYS | PA13 | SYS_JTMS-SWDIO | n/a | n/a | n/a | |
| | PA14 | SYS_JTCK-SWCLK | n/a | n/a | n/a | |
| UART5 | PC12 | UART5_TX | Alternate Function Push Pull | Pull-up | **Very High** * | |
| | PD2 | UART5_RX | Alternate Function Push Pull | Pull-up | **Very High** * | |
| USART1 | PA9 | USART1_TX | Alternate Function Push Pull | Pull-up | **Very High** * | |
| | | | | | | |

| IP | Pin | Signal | GPIO mode | GPIO pull/up pull down | Max Speed | User Label |
|---|---|---|---|---|---|---|
| | PA10 | USART1_RX | Alternate Function Push Pull | Pull-up | **Very High *** | |
| USART3 | PB10 | USART3_TX | Alternate Function Push Pull | Pull-up | **Very High *** | |
| | PB11 | USART3_RX | Alternate Function Push Pull | Pull-up | **Very High *** | |
| GPIO | PF7 | GPIO_Output | Output Push Pull | **Pull-up *** | Low | |
| | PA0-WKUP | GPIO_Input | Input mode | No pull-up and no pull-down | n/a | |
| | PA5 | GPIO_Output | Output Push Pull | **Pull-up *** | Low | |
| | PB0 | GPIO_Output | Output Push Pull | **Pull-up *** | Low | |
| | PG15 | GPIO_Input | Input mode | No pull-up and no pull-down | n/a | |

## 6.2. DMA configuration

| DMA request | Stream | Direction | Priority |
|---|---|---|---|
| USART3_RX | DMA1_Stream1 | Peripheral To Memory | **Medium *** |
| USART3_TX | DMA1_Stream3 | Memory To Peripheral | Low |

### *USART3_RX: DMA1_Stream1 DMA request Settings:*

| | |
|---|---|
| Mode: | Normal |
| Use fifo: | Disable |
| Peripheral Increment: | Disable |
| Memory Increment: | **Enable *** |
| Peripheral Data Width: | Byte |
| Memory Data Width: | Byte |

### *USART3_TX: DMA1_Stream3 DMA request Settings:*

| | |
|---|---|
| Mode: | Normal |
| Use fifo: | Disable |
| Peripheral Increment: | Disable |
| Memory Increment: | **Enable *** |
| Peripheral Data Width: | Byte |
| Memory Data Width: | Byte |

## 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 |
| System service call via SWI instruction | true | 0 | 0 |
| Debug monitor | true | 0 | 0 |
| Pendable request for system service | true | 15 | 0 |
| System tick timer | true | 15 | 0 |
| RCC global interrupt | true | 5 | 0 |
| DMA1 stream1 global interrupt | true | 5 | 0 |
| DMA1 stream3 global interrupt | true | 5 | 0 |
| USART1 global interrupt | true | 5 | 0 |
| USART3 global interrupt | true | 5 | 0 |
| UART5 global interrupt | true | 5 | 0 |
| Ethernet global interrupt | true | 5 | 0 |
| PVD interrupt through EXTI line 16 | unused | | |
| Flash global interrupt | unused | | |
| Ethernet wake-up interrupt through EXTI line 19 | unused | | |
| FPU global interrupt | unused | | |

*** User modified value**

# 7. Power Consumption Calculator report

7.1. Microcontroller Selection

| | |
|---|---|
| Series | STM32F4 |
| Line | STM32F407/417 |
| MCU | STM32F407ZGTx |
| Datasheet | 022152_Rev8 |

7.2. Parameter Selection

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

# 8. Software Project

## 8.1. Project Settings

| Name | Value |
|---|---|
| Project Name | ZR60_v1.0 |
| Project Folder | D:\work_lj\ProjectBuilder\ZR60\ZR60_CubeMx\ZR60_v1.0 |
| Toolchain / IDE | MDK-ARM V5 |
| Firmware Package Name and Version | STM32Cube FW_F4 V1.16.0 |

## 8.2. Code Generation Settings

| Name | Value |
|---|---|
| STM32Cube Firmware Library Package | 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 |