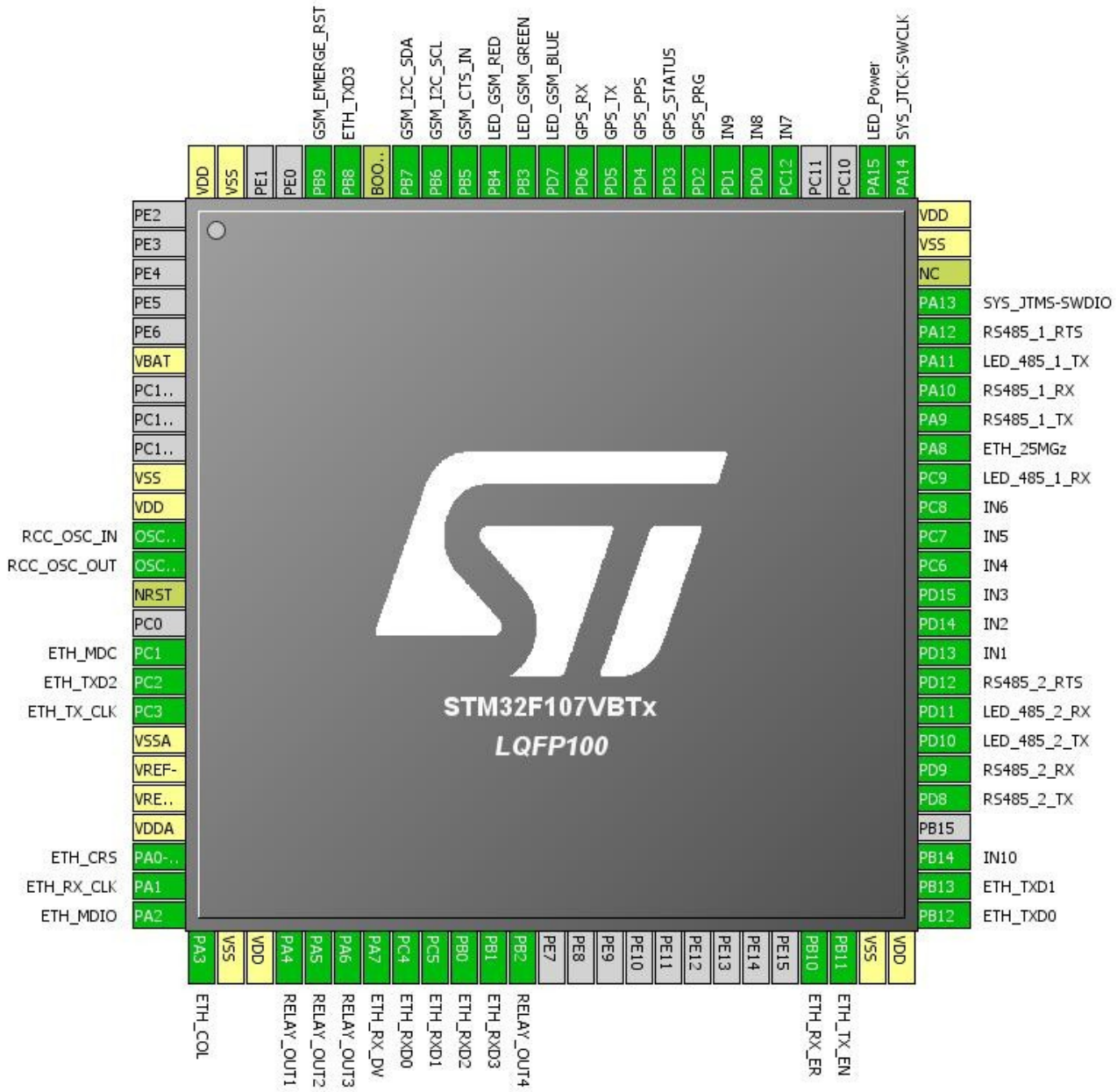
# 2. Pinout Configuration



# 3. Pins Configuration

| Pin Number LQFP100 | Pin Name (function after reset) | Pin Type | Alternate Function(s) | Label |
|---|---|---|---|---|
| 6 | VBAT | Power | | |
| 10 | VSS | Power | | |
| 11 | VDD | Power | | |
| 12 | OSC_IN | I/O | RCC_OSC_IN | |
| 13 | OSC_OUT | I/O | RCC_OSC_OUT | |
| 14 | NRST | Reset | | |
| 16 | PC1 | I/O | ETH_MDC | |
| 17 | PC2 | I/O | ETH_TXD2 | |
| 18 | PC3 | I/O | ETH_TX_CLK | |
| 19 | VSSA | Power | | |
| 20 | VREF- | Power | | |
| 21 | VREF+ | Power | | |
| 22 | VDDA | Power | | |
| 23 | PA0-WKUP | I/O | ETH_CRS | |
| 24 | PA1 | I/O | ETH_RX_CLK | |
| 25 | PA2 | I/O | ETH_MDIO | |
| 26 | PA3 | I/O | ETH_COL | |
| 27 | VSS | Power | | |
| 28 | VDD | Power | | |
| 29 | PA4 * | I/O | GPIO_Output | RELAY_OUT1 |
| 30 | PA5 * | I/O | GPIO_Output | RELAY_OUT2 |
| 31 | PA6 * | I/O | GPIO_Output | RELAY_OUT3 |
| 32 | PA7 | I/O | ETH_RX_DV | |
| 33 | PC4 | I/O | ETH_RXD0 | |
| 34 | PC5 | I/O | ETH_RXD1 | |
| 35 | PB0 | I/O | ETH_RXD2 | |
| 36 | PB1 | I/O | ETH_RXD3 | |
| 37 | PB2 * | I/O | GPIO_Output | RELAY_OUT4 |
| 47 | PB10 | I/O | ETH_RX_ER | |
| 48 | PB11 | I/O | ETH_TX_EN | |
| 49 | VSS | Power | | |
| 50 | VDD | Power | | |
| 51 | PB12 | I/O | ETH_TXD0 | |
| 52 | PB13 | I/O | ETH_TXD1 | |
| 53 | PB14 * | I/O | GPIO_Input | IN10 |
| 55 | PD8 | I/O | USART3_TX | RS485_2_TX |

| Pin Number LQFP100 | Pin Name (function after reset) | Pin Type | Alternate Function(s) | Label |
|---|---|---|---|---|
| 56 | PD9 | I/O | USART3_RX | RS485_2_RX |
| 57 | PD10 * | I/O | GPIO_Output | LED_485_2_TX |
| 58 | PD11 * | I/O | GPIO_Output | LED_485_2_RX |
| 59 | PD12 | I/O | USART3_RTS | RS485_2_RTS |
| 60 | PD13 * | I/O | GPIO_Input | IN1 |
| 61 | PD14 * | I/O | GPIO_Input | IN2 |
| 62 | PD15 * | I/O | GPIO_Input | IN3 |
| 63 | PC6 * | I/O | GPIO_Input | IN4 |
| 64 | PC7 * | I/O | GPIO_Input | IN5 |
| 65 | PC8 * | I/O | GPIO_Input | IN6 |
| 66 | PC9 * | I/O | GPIO_Output | LED_485_1_RX |
| 67 | PA8 | I/O | RCC_MCO | ETH_25MGz |
| 68 | PA9 | I/O | USART1_TX | RS485_1_TX |
| 69 | PA10 | I/O | USART1_RX | RS485_1_RX |
| 70 | PA11 * | I/O | GPIO_Output | LED_485_1_TX |
| 71 | PA12 | I/O | USART1_RTS | RS485_1_RTS |
| 72 | PA13 | I/O | SYS_JTMS-SWDIO | |
| 73 | NC | NC | | |
| 74 | VSS | Power | | |
| 75 | VDD | Power | | |
| 76 | PA14 | I/O | SYS_JTCK-SWCLK | |
| 77 | PA15 * | I/O | GPIO_Output | LED_Power |
| 80 | PC12 * | I/O | GPIO_Input | IN7 |
| 81 | PD0 * | I/O | GPIO_Input | IN8 |
| 82 | PD1 * | I/O | GPIO_Input | IN9 |
| 83 | PD2 * | I/O | GPIO_Output | GPS_PRG |
| 84 | PD3 | I/O | GPIO_EXTI3 | GPS_STATUS |
| 85 | PD4 * | I/O | GPIO_Input | GPS_PPS |
| 86 | PD5 | I/O | USART2_TX | GPS_TX |
| 87 | PD6 | I/O | USART2_RX | GPS_RX |
| 88 | PD7 * | I/O | GPIO_Output | LED_GSM_BLUE |
| 89 | PB3 * | I/O | GPIO_Output | LED_GSM_GREEN |
| 90 | PB4 * | I/O | GPIO_Output | LED_GSM_RED |
| 91 | PB5 * | I/O | GPIO_Input | GSM_CTS_IN |
| 92 | PB6 | I/O | I2C1_SCL | GSM_I2C_SCL |
| 93 | PB7 | I/O | I2C1_SDA | GSM_I2C_SDA |
| 94 | BOOT0 | Boot | | |
| 95 | PB8 | I/O | ETH_TXD3 | |
| 96 | PB9 * | I/O | GPIO_Output | GSM_EMERGE_RST |

| Pin Number LQFP100 | Pin Name (function after reset) | Pin Type | Alternate Function(s) | Label |
|---|---|---|---|---|
| 99 | VSS | Power | | |
| 100 | VDD | Power | | |

* The pin is affected with an I/O function

# 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 | n/a | High | |
| | PC2 | ETH_TXD2 | Alternate Function Push Pull | n/a | High | |
| | PC3 | ETH_TX_CLK | Input mode | No pull-up and no pull-down | n/a | |
| | PA0-WKUP | ETH_CRS | Input mode | No pull-up and no pull-down | n/a | |
| | PA1 | ETH_RX_CLK | Input mode | No pull-up and no pull-down | n/a | |
| | PA2 | ETH_MDIO | Alternate Function Push Pull | n/a | High | |
| | PA3 | ETH_COL | Input mode | No pull-up and no pull-down | n/a | |
| | PA7 | ETH_RX_DV | Input mode | No pull-up and no pull-down | n/a | |
| | PC4 | ETH_RXD0 | Input mode | No pull-up and no pull-down | n/a | |
| | PC5 | ETH_RXD1 | Input mode | No pull-up and no pull-down | n/a | |
| | PB0 | ETH_RXD2 | Input mode | No pull-up and no pull-down | n/a | |
| | PB1 | ETH_RXD3 | Input mode | No pull-up and no pull-down | n/a | |
| | PB10 | ETH_RX_ER | Input mode | No pull-up and no pull-down | n/a | |
| | PB11 | ETH_TX_EN | Alternate Function Push Pull | n/a | High | |
| | PB12 | ETH_TXD0 | Alternate Function Push Pull | n/a | High | |
| | PB13 | ETH_TXD1 | Alternate Function Push Pull | n/a | High | |
| | PB8 | ETH_TXD3 | Alternate Function Push Pull | n/a | High | |
| I2C1 | PB6 | I2C1_SCL | Alternate Function Open Drain | n/a | **High *** | GSM_I2C_SCL |
| | PB7 | I2C1_SDA | Alternate Function Open Drain | n/a | **High *** | GSM_I2C_SDA |
| RCC | OSC_IN | RCC_OSC_IN | n/a | n/a | n/a | |
| | OSC_OUT | RCC_OSC_OUT | n/a | n/a | n/a | |
| | PA8 | RCC_MCO | Alternate Function Push Pull | n/a | Low | ETH_25MGz |
| SYS | PA13 | SYS_JTMS-SWDIO | n/a | n/a | n/a | |
| | PA14 | SYS_JTCK-SWCLK | n/a | n/a | n/a | |
| USART1 | PA9 | USART1_TX | Alternate Function Push Pull | n/a | **High *** | RS485_1_TX |
| | PA10 | USART1_RX | Input mode | No pull-up and no pull-down | **n/a** | RS485_1_RX |
| | PA12 | USART1_RTS | Alternate Function Push Pull | n/a | **High *** | RS485_1_RTS |
| USART2 | PD5 | USART2_TX | Alternate Function Push Pull | n/a | **High *** | GPS_TX |
| | PD6 | USART2_RX | Input mode | No pull-up and no pull-down | **n/a** | GPS_RX |
| USART3 | PD8 | USART3_TX | Alternate Function Push Pull | n/a | **High *** | RS485_2_TX |

| IP | Pin | Signal | GPIO mode | GPIO pull/up pull down | Max Speed | User Label |
|---|---|---|---|---|---|---|
| | PD9 | USART3_RX | Input mode | No pull-up and no pull-down | **n/a** | RS485_2_RX |
| | PD12 | USART3_RTS | Alternate Function Push Pull | n/a | **High *** | RS485_2_RTS |
| GPIO | PA4 | GPIO_Output | Output Push Pull | n/a | Low | RELAY_OUT1 |
| | PA5 | GPIO_Output | Output Push Pull | n/a | Low | RELAY_OUT2 |
| | PA6 | GPIO_Output | Output Push Pull | n/a | Low | RELAY_OUT3 |
| | PB2 | GPIO_Output | Output Push Pull | n/a | Low | RELAY_OUT4 |
| | PB14 | GPIO_Input | Input mode | No pull-up and no pull-down | n/a | IN10 |
| | PD10 | GPIO_Output | Output Push Pull | n/a | Low | LED_485_2_TX |
| | PD11 | GPIO_Output | Output Push Pull | n/a | Low | LED_485_2_RX |
| | PD13 | GPIO_Input | Input mode | No pull-up and no pull-down | n/a | IN1 |
| | PD14 | GPIO_Input | Input mode | No pull-up and no pull-down | n/a | IN2 |
| | PD15 | GPIO_Input | Input mode | No pull-up and no pull-down | n/a | IN3 |
| | PC6 | GPIO_Input | Input mode | No pull-up and no pull-down | n/a | IN4 |
| | PC7 | GPIO_Input | Input mode | No pull-up and no pull-down | n/a | IN5 |
| | PC8 | GPIO_Input | Input mode | No pull-up and no pull-down | n/a | IN6 |
| | PC9 | GPIO_Output | Output Push Pull | n/a | Low | LED_485_1_RX |
| | PA11 | GPIO_Output | Output Push Pull | n/a | Low | LED_485_1_TX |
| | PA15 | GPIO_Output | Output Push Pull | n/a | Low | LED_Power |
| | PC12 | GPIO_Input | Input mode | No pull-up and no pull-down | n/a | IN7 |
| | PD0 | GPIO_Input | Input mode | No pull-up and no pull-down | n/a | IN8 |
| | PD1 | GPIO_Input | Input mode | No pull-up and no pull-down | n/a | IN9 |
| | PD2 | GPIO_Output | Output Push Pull | n/a | Low | GPS_PRG |
| | PD3 | GPIO_EXTI3 | External Interrupt Mode with Rising edge trigger detection | No pull-up and no pull-down | n/a | GPS_STATUS |
| | PD4 | GPIO_Input | Input mode | No pull-up and no pull-down | n/a | GPS_PPS |
| | PD7 | GPIO_Output | Output Push Pull | n/a | Low | LED_GSM_BLUE |
| | PB3 | GPIO_Output | Output Push Pull | n/a | Low | LED_GSM_GREEN |
| | PB4 | GPIO_Output | Output Push Pull | n/a | Low | LED_GSM_RED |
| | PB5 | GPIO_Input | Input mode | No pull-up and no pull-down | n/a | GSM_CTS_IN |
| | PB9 | GPIO_Output | **Output Open Drain *** | n/a | Low | GSM_EMERGE_RST |