- **AHB2 Peripherals:**
  - **0x5000 0000 - 0x5003 FFFF (USB OTG FS):**
    - **Description:** USB On-The-Go Full-Speed (OTG FS) peripheral. This allows the microcontroller to function as a USB host or device.
    - **Reference:** Section 22.16.6.
- **AHB1 Peripherals:**
  - **0x4002 6400 - 0x4002 67FF (DMA2):**
    - **Description:** Direct Memory Access Controller 2, responsible for high-speed memory-to-memory data transfers without CPU intervention.
    - **Reference:** Section 9.5.11.
  - **0x4002 6000 - 0x4002 63FF (DMA1):**
    - **Description:** Direct Memory Access Controller 1, similar to DMA2 but with a separate set of channels.
    - **Reference:** Section 9.5.11.
  - **0x4002 3C00 - 0x4002 3FFF (Flash Interface):**
    - **Description:** Flash interface registers, used for programming and erasing the internal Flash memory.
    - **Reference:** Section 3.8.
  - **0x4002 3800 - 0x4002 3BFF (RCC):**
    - **Description:** Reset and Clock Control (RCC) registers, used to control the clock and reset functionality of the microcontroller.
    - **Reference:** Section 6.3.22.
  - **0x4002 3000 - 0x4002 33FF (CRC):**
    - **Description:** Cyclic Redundancy Check (CRC) calculation unit, used for checking data integrity.
    - **Reference:** Section 4.4.4.
  - **0x4002 1C00 - 0x4002 1FFF (GPIOH):**
    - **Description:** General Purpose Input/Output (GPIO) Port H registers, used for configuring and controlling GPIO pins.
    - **Reference:** Section 8.4.11.
  - **0x4002 1000 - 0x4002 13FF (GPIOE):**
  - **0x4002 0C00 - 0x4002 0FFF (GPIOD):**
  - **0x4002 0800 - 0x4002 0BFF (GPIOC):**
  - **0x4002 0400 - 0x4002 07FF (GPIOB):**
  - **0x4002 0000 - 0x4002 03FF (GPIOA):**

    - **Description:** General Purpose Input/Output (GPIO) registers for Ports A, B, C, D, and E.
    - **Reference:** Section 8.4.11.

- **APB2 Peripherals:**
  - **0x4001 4800 - 0x4001 4BFF (TIM11):**
  - **0x4001 4400 - 0x4001 47FF (TIM10):**
    - **Description:** Timer 10 and Timer 11 registers, used for configuring and controlling the timers.
    - **Reference:** Section 14.5.12.
  - **0x4001 4000 - 0x4001 43FF (TIM9):**
    - **Description:** Timer 9 registers.
    - **Reference:** Section 14.4.13.
  - **0x4001 3C00 - 0x4001 3FFF (EXTI):**
    - **Description:** External Interrupt/Event Controller (EXTI) registers, used for managing external interrupts.
    - **Reference:** Section 10.3.7.
  - **0x4001 3800 - 0x4001 3BFF (SYSCFG):**
    - **Description:** System Configuration Controller (SYSCFG) registers, used for system-level configurations.
    - **Reference:** Section 7.2.8.
  - **0x4001 3400 - 0x4001 37FF (SPI4):**
  - **0x4001 3000 - 0x4001 33FF (SPI1):**
    - **Description:** Serial Peripheral Interface (SPI) registers for SPI1 and SPI4, used for SPI communication.
    - **Reference:** Section 20.5.10.
  - **0x4001 2C00 - 0x4001 2FFF (SDIO):**
    - **Description:** Secure Digital Input/Output (SDIO) interface registers, used for interfacing with SD cards.
    - **Reference:** Section 21.9.16.
  - **0x4001 2000 - 0x4001 23FF (ADC1):**
    - **Description:** Analog-to-Digital Converter 1 (ADC1) registers, used for converting analog signals to digital.
    - **Reference:** Section 11.12.16.
  - **0x4001 1400 - 0x4001 17FF (USART6):**
  - **0x4001 1000 - 0x4001 13FF (USART1):**
    - **Description:** Universal Synchronous/Asynchronous Receiver/Transmitter (USART) registers for USART1 and USART6, used for serial communication.

    - **Reference:** Section 19.6.8.
  - **0x4001 0000 - 0x4001 03FF (TIM1):**
    - **Description:** Timer 1 (TIM1) registers.
    - **Reference:** Section 12.4.21.

- **APB1 Peripherals:**
  - **0x4000 7000 - 0x4000 73FF (PWR):**
    - **Description:** Power Control (PWR) registers, used for managing power modes.
    - **Reference:** Section 5.5.
  - **0x4000 5C00 - 0x4000 5FFF (I2C3):**
  - **0x4000 5800 - 0x4000 5BFF (I2C2):**
  - **0x4000 5400 - 0x4000 57FF (I2C1):**
    - **Description:** Inter-Integrated Circuit (I2C) registers for I2C1, I2C2, and I2C3, used for I2C communication.
    - **Reference:** Section 18.6.11.
  - **0x4000 4400 - 0x4000 47FF (USART2):**
    - **Description:** Universal Synchronous/Asynchronous Receiver/Transmitter (USART) registers for USART2, used for serial communication.
    - **Reference:** Section 19.6.8.
  - **0x4000 4000 - 0x4000 43FF (I2S3ext):**
    - **Description:** Inter-IC Sound (I2S) extension for I2S3, used for audio data transmission.
    - **Reference:** Section 20.5.10.
  - **0x4000 3C00 - 0x4000 3FFF (SPI3 / I2S3):**
  - **0x4000 3800 - 0x4000 3BFF (SPI2 / I2S2):**
    - **Description:** Serial Peripheral Interface (SPI) and Inter-IC Sound (I2S) registers for SPI2/SPI3 and I2S2/I2S3.
    - **Reference:** Section 20.5.10.
  - **0x4000 3400 - 0x4000 37FF (I2S2ext):**
    - **Description:** Inter-IC Sound (I2S) extension for I2S2, used for audio data transmission.
    - **Reference:** Section 20.5.10.
  - **0x4000 3000 - 0x4000 33FF (IWDG):**
    - **Description:** Independent Watchdog (IWDG) registers, used for system reset in case of failure.
    - **Reference:** Section 15.4.5.
  - **0x4000 2C00 - 0x4000 2FFF (WWDG):**

    - **Description:** Window Watchdog (WWDG) registers, used for system reset with a specific timing window.
    - **Reference:** Section 16.6.4.
- **0x4000 2800 - 0x4000 2BFF (RTC & BKP Registers):**
    - **Description:** Real-Time Clock (RTC) and Backup (BKP) registers, used for timekeeping and backup registers.
    - **Reference:** Section 17.6.21.
- **0x4000 0C00 - 0x4000 0FFF (TIM5):**
- **0x4000 0800 - 0x4000 0BFF (TIM4):**
- **0x4000 0400 - 0x4000 07FF (TIM3):**
- **0x4000 0000 - 0x4000 03FF (TIM2):**
    - **Description:** General-purpose Timer registers for TIM2, TIM3, TIM4, and TIM5.
    - **Reference:** Section 13.4.21.