

```

/* USER CODE BEGIN Header */
/**
 * *****
 * @file           : main.c
 * @brief          : Main program body
 * *****
 * @attention
 *
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 *
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 *
 *             opensource.org/licenses/BSD-3-Clause
 * *****
 */
/* USER CODE END Header */
/* Includes ----- */
#include "main.h"

/* Private includes ----- */
/* USER CODE BEGIN Includes */

/* USER CODE END Includes */

/* Private typedef ----- */
/* USER CODE BEGIN PTD */

/* USER CODE END PTD */

/* Private define ----- */
/* USER CODE BEGIN PD */
/* USER CODE END PD */

/* Private macro ----- */
/* USER CODE BEGIN PM */

/* USER CODE END PM */

/* Private variables ----- */
/* USER CODE BEGIN PV */
/* USER CODE END PV */

/* Private function prototypes ----- */
void SystemClock_Config(void);
/* USER CODE BEGIN PFP */

/* USER CODE END PFP */

/* Private user code ----- */
/* USER CODE BEGIN 0 */

/* USER CODE END 0 */

/**
 * @brief The application entry point.
 * @retval int
 */
int main(void)
{

```

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/* USER CODE BEGIN 1 */

/* USER CODE END 1 */

/* MCU Configuration-----*/

/* Reset of all peripherals, Initializes the Flash interface and the SysTick.
*/
HAL_Init();

/* USER CODE BEGIN Init */

/* USER CODE END Init */

/* Configure the system clock */
SystemClock_Config();

/* USER CODE BEGIN SysInit */

/* USER CODE END SysInit */

/* Initialize all configured peripherals */
/* USER CODE BEGIN 2 */

RCC->AHB1ENR = 1<<0|1<<2;

GPIOA->MODER = 0x00000000;
GPIOC->MODER = 0x55555555;

/* USER CODE END 2 */

/* Infinite loop */
/* USER CODE BEGIN WHILE */
while (1)
{
    if (GPIOA->IDR & 0x00000008)
    {
        GPIOC->ODR = 0x0000000D;
    }
    else
    {
        GPIOC->ODR = 0x00000000;
    }
}
/* USER CODE END WHILE */

/* USER CODE BEGIN 3 */
}
/* USER CODE END 3 */
}

/**
 * @brief System Clock Configuration
 * @retval None
 */
void SystemClock_Config(void)
{
    RCC_OscInitTypeDef RCC_OscInitStruct = {0};
    RCC_ClkInitTypeDef RCC_ClkInitStruct = {0};

    /** Configure the main internal regulator output voltage
    */
    __HAL_RCC_PWR_CLK_ENABLE();
    __HAL_PWR_VOLTAGESCALING_CONFIG(PWR_REGULATOR_VOLTAGE_SCALE1);

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/** Initializes the RCC Oscillators according to the specified parameters
 * in the RCC_OscInitTypeDef structure.
 */
RCC_OscInitStruct.OscillatorType = RCC_OSCILLATORTYPE_HSI;
RCC_OscInitStruct.HSISState = RCC_HSI_ON;
RCC_OscInitStruct.HSICalibrationValue = RCC_HSICALIBRATION_DEFAULT;
RCC_OscInitStruct.PLL.PLLState = RCC_PLL_NONE;
if (HAL_RCC_OscConfig(&RCC_OscInitStruct) != HAL_OK)
{
    Error_Handler();
}
/** Initializes the CPU, AHB and APB buses clocks
 */
RCC_ClkInitStruct.ClockType = RCC_CLOCKTYPE_HCLK|RCC_CLOCKTYPE_SYSCLOCK
                             |RCC_CLOCKTYPE_PCLK1|RCC_CLOCKTYPE_PCLK2;
RCC_ClkInitStruct.SYSCLOCKSource = RCC_SYSCLOCKSOURCE_HSI;
RCC_ClkInitStruct.AHBCLKDivider = RCC_SYSCLOCK_DIV1;
RCC_ClkInitStruct.APB1CLKDivider = RCC_HCLK_DIV1;
RCC_ClkInitStruct.APB2CLKDivider = RCC_HCLK_DIV1;

if (HAL_RCC_ClockConfig(&RCC_ClkInitStruct, FLASH_LATENCY_0) != HAL_OK)
{
    Error_Handler();
}
}

/* USER CODE BEGIN 4 */

/* USER CODE END 4 */

/**
 * @brief This function is executed in case of error occurrence.
 * @retval None
 */
void Error_Handler(void)
{
    /* USER CODE BEGIN Error_Handler_Debug */
    /* User can add his own implementation to report the HAL error return state */
    __disable_irq();
    while (1)
    {
    }
    /* USER CODE END Error_Handler_Debug */
}

#ifdef USE_FULL_ASSERT
/**
 * @brief Reports the name of the source file and the source line number
 * where the assert_param error has occurred.
 * @param file: pointer to the source file name
 * @param line: assert_param error line source number
 * @retval None
 */
void assert_failed(uint8_t *file, uint32_t line)
{
    /* USER CODE BEGIN 6 */
    /* User can add his own implementation to report the file name and line
    number,
    ex: printf("Wrong parameters value: file %s on line %d\r\n", file, line) */
    /* USER CODE END 6 */
}
#endif /* USE_FULL_ASSERT */

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