

## SystemClock Config() function to enable the PLL and generate 80MHz SYSCLK/HCLK

```
/**
 * @brief System Clock Configuration
 * The system Clock is configured as follow :
 * System Clock source = PLL (MSI)
 * SYSCLK(Hz) = 80000000
 * HCLK(Hz) = 80000000
 * AHB Prescaler = 1
 * APB1 Prescaler = 1
 * APB2 Prescaler = 1
 * MSI Frequency(Hz) = 8000000
 * PLL_M = 1
 * PLL_N = 20
 * PLL_R = 2
 * PLL_P = 7
 * PLL_Q = 4
 * Flash Latency(WS) = 4
 * @retval None
 */
void SystemClock_Config(void)
{
    /* oscillator and clocks configs */
    RCC_ClkInitTypeDef RCC_ClkInitStruct = {0};
    RCC_OscInitTypeDef RCC_OscInitStruct = {0};

    /* Enable Power Control clock */
    __HAL_RCC_PWR_CLK_ENABLE();

    if(HAL_PWREx_ControlVoltageScaling(PWR_REGULATOR_VOLTAGE_SCALE1) !=
    HAL_OK)
    {
        /* Initialization Error */
        Error_Handler();
    }

    /* Disable Power Control clock */
    __HAL_RCC_PWR_CLK_DISABLE();

    /* 80 Mhz from MSI 8Mhz */
    /* MSI is enabled after System reset, activate PLL with MSI as source
    */
    RCC_OscInitStruct.OscillatorType = RCC_OSCILLATORTYPE_MSI;
    RCC_OscInitStruct.MSISState = RCC_MSI_ON;
    RCC_OscInitStruct.MSIClockRange = RCC_MSIRANGE_7;
    RCC_OscInitStruct.MSICalibrationValue = RCC_MSICALIBRATION_DEFAULT;
    RCC_OscInitStruct.PLL.PLLState = RCC_PLL_ON;
    RCC_OscInitStruct.PLL.PLLSource = RCC_PLLSOURCE_MSI;
    RCC_OscInitStruct.PLL.PLLM = 1;
    RCC_OscInitStruct.PLL.PLLN = 20;
    RCC_OscInitStruct.PLL.PLLR = 2;
    RCC_OscInitStruct.PLL.PLLP = 7;
    RCC_OscInitStruct.PLL.PLLQ = 4;
}
```

```

if(HAL_RCC_OscConfig(&RCC_OscInitStruct) != HAL_OK)
{
    /* Initialization Error */
    Error_Handler();
}

/* Select PLL as system clock source and configure the HCLK, PCLK1 and
PCLK2
   clocks dividers */
RCC_ClkInitStruct.ClockType = (RCC_CLOCKTYPE_SYSCLK |
RCC_CLOCKTYPE_HCLK | RCC_CLOCKTYPE_PCLK1 | RCC_CLOCKTYPE_PCLK2);
RCC_ClkInitStruct.SYSCLKSource = RCC_SYSCLKSOURCE_PLLCLK;
RCC_ClkInitStruct.AHBCLKDivider = RCC_SYSCLK_DIV1;
RCC_ClkInitStruct.APB1CLKDivider = RCC_HCLK_DIV1;
RCC_ClkInitStruct.APB2CLKDivider = RCC_HCLK_DIV1;
if(HAL_RCC_ClockConfig(&RCC_ClkInitStruct, FLASH_LATENCY_4) != HAL_OK)
{
    /* Initialization Error */
    Error_Handler();
}

/* Enable Power Control clock */
__HAL_RCC_PWR_CLK_ENABLE();

if(HAL_PWREx_ControlVoltageScaling(PWR_REGULATOR_VOLTAGE_SCALE1) !=
HAL_OK)
{
    /* Initialization Error */
    Error_Handler();
}

/* Disable Power Control clock */
__HAL_RCC_PWR_CLK_DISABLE();
}

```