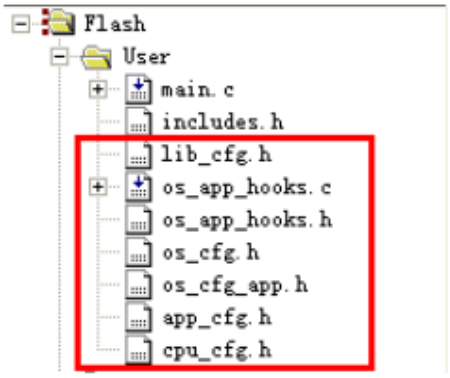
11.1 系统配置文件

下面先简单说明下μCOS-III 中几个配置文件的作用，方便分析源码的时候查看，配置文件主要有以下几个：



11.1.1 lib_cfg.h配置文件

```
*********************************************************************************************************
*                                                MODULE
*********************************************************************************************************
*/

#ifndef  LIB_CFG_MODULE_PRESENT
#define  LIB_CFG_MODULE_PRESENT

/*
*********************************************************************************************************
*                                          uC/LIB CONFIGURATION
*********************************************************************************************************
*/

#define  LIB_MEM_CFG_ARG_CHK_EXT_EN     DEF_ENABLED
                                         /*   DEF_DISABLED     Argument check DISABLED       */
                                         /*   DEF_ENABLED      Argument check ENABLED        */

#define  LIB_MEM_CFG_OPTIMIZE_ASM_EN    DEF_ENABLED
                                         /*   DEF_DISABLED     Assembly-optimized function(s) DISABLED   */
                                         /*   DEF_ENABLED      Assembly-optimized function(s) ENABLED    */

#define  LIB_MEM_CFG_ALLOC_EN           DEF_ENABLED
                                         /*   DEF_DISABLED     Memory allocation DISABLED    */
                                         /*   DEF_ENABLED      Memory allocation ENABLED     */

#define  LIB_MEM_CFG_HEAP_SIZE          23u * 1024u      /* Configure Heap Memory Size  */

/*
*********************************************************************************************************
*                                            MODULE END
*********************************************************************************************************
*/

#endif
```

lib_cfg.h 是用于给 uC/LIB 做配置的头文件。如果程序中使用 uC/LIB 的话，需要调用函数 Mem_Init()进行初始化。

11.1.2 os_cfg.h配置文件

os_cfg.h 文件中的内容如下：

```
#ifndef OS_CFG_H
#define OS_CFG_H


/* ---------------------------- MISCELLANEOUS ---------------------------- */
#define OS_CFG_APP_HOOKS_EN             1u   /* Enable (1) or Disable (0) application specific hooks  */
#define OS_CFG_ARG_CHK_EN               1u   /* Enable (1) or Disable (0) argument checking           */
#define OS_CFG_CALLED_FROM_ISR_CHK_EN   1u   /* Enable (1) or Disable (0) check for called from ISR   */
#define OS_CFG_DBG_EN                   1u   /* Enable (1) debug code/variables                       */
#define OS_CFG_ISR_POST_DEFERRED_EN     0u   /* Enable (1) or Disable (0) Deferred ISR posts          */
#define OS_CFG_OBJ_TYPE_CHK_EN          1u   /* Enable (1) or Disable (0) object type checking        */
#define OS_CFG_TS_EN                    1u   /* Enable (1) or Disable (0) time stamping               */

#define OS_CFG_PEND_MULTI_EN  1u   /* Enable (1) or Disable (0) code generation for multi-pend feature   */
```

```
#define OS_CFG_PRIO_MAX       64u  /* Defines the maximum number of task priorities (see OS_PRIO data type) */

#define OS_CFG_SCHED_LOCK_TIME_MEAS_EN  0u   /* Include code to measure scheduler lock time           */
#define OS_CFG_SCHED_ROUND_ROBIN_EN     0u   /* Include code for Round-Robin scheduling               */
#define OS_CFG_STK_SIZE_MIN            64u   /* Minimum allowable task stack size                     */


/* ---------------------------- EVENT FLAGS ---------------------------- */
#define OS_CFG_FLAG_EN          1u   /* Enable (1) or Disable (0) code generation for EVENT FLAGS   */
#define OS_CFG_FLAG_DEL_EN      1u   /* Include code for OSFlagDel()                                */
#define OS_CFG_FLAG_MODE_CLR_EN 1u   /* Include code for Wait on Clear EVENT FLAGS                  */
#define OS_CFG_FLAG_PEND_ABORT_EN 1u /* Include code for OSFlagPendAbort()                          */


/* ---------------------- MEMORY MANAGEMENT ---------------------- */
#define OS_CFG_MEM_EN           1u   /* Enable (1) or Disable (0) code generation for MEMORY MANAGER  */


/* ---------------------- MUTUAL EXCLUSION SEMAPHORES ---------------------- */
#define OS_CFG_MUTEX_EN                 1u   /* Enable (1) or Disable (0) code generation for MUTEX   */
#define OS_CFG_MUTEX_DEL_EN             1u   /* Include code for OSMutexDel()                         */
#define OS_CFG_MUTEX_PEND_ABORT_EN      1u   /* Include code for OSMutexPendAbort()                   */


/* ---------------------------- MESSAGE QUEUES ---------------------------- */
#define OS_CFG_Q_EN                     1u   /* Enable (1) or Disable (0) code generation for QUEUES  */
#define OS_CFG_Q_DEL_EN                 1u   /* Include code for OSQDel()                             */
#define OS_CFG_Q_FLUSH_EN               1u   /* Include code for OSQFlush()                           */
#define OS_CFG_Q_PEND_ABORT_EN          1u   /* Include code for OSQPendAbort()                       */


/* ---------------------------- SEMAPHORES ---------------------------- */
#define OS_CFG_SEM_EN                   1u   /* Enable (1) or Disable (0) code generation for SEMAPHORES */
#define OS_CFG_SEM_DEL_EN               1u   /* Include code for OSSemDel()                           */
#define OS_CFG_SEM_PEND_ABORT_EN        1u   /* Include code for OSSemPendAbort()                     */
#define OS_CFG_SEM_SET_EN               1u   /* Include code for OSSemSet()                           */
```

```
/* ------------------------ TASK MANAGEMENT ------------------------ */
#define OS_CFG_STAT_TASK_EN             1u   /* Enable (1) or Disable(0) the statistics task   */
#define OS_CFG_STAT_TASK_STK_CHK_EN     1u   /* Check task stacks from statistic task          */

#define OS_CFG_TASK_CHANGE_PRIO_EN      1u   /* Include code for OSTaskChangePrio()            */
#define OS_CFG_TASK_DEL_EN              1u   /* Include code for OSTaskDel()                   */
#define OS_CFG_TASK_Q_EN                1u   /* Include code for OSTaskQXXXX()                 */
#define OS_CFG_TASK_Q_PEND_ABORT_EN     1u   /* Include code for OSTaskQPendAbort()            */
#define OS_CFG_TASK_PROFILE_EN          1u   /* Include variables in OS_TCB for profiling      */
#define OS_CFG_TASK_REG_TBL_SIZE        1u   /* Number of task specific registers              */
#define OS_CFG_TASK_SEM_PEND_ABORT_EN   1u   /* Include code for OSTaskSemPendAbort()                */
#define OS_CFG_TASK_SUSPEND_EN          1u   /* Include code for OSTaskSuspend() and OSTaskResume() */


/* ------------------------ TIME MANAGEMENT ------------------------ */
#define OS_CFG_TIME_DLY_HMSM_EN         1u   /* Include code for OSTimeDlyHMSM()                 */
#define OS_CFG_TIME_DLY_RESUME_EN       1u   /* Include code for OSTimeDlyResume()               */
/* ------------------------ TIMER MANAGEMENT ------------------------ */
#define OS_CFG_TMR_EN          1u   /* Enable (1) or Disable (0) code generation for TIMERS      */
#define OS_CFG_TMR_DEL_EN      1u   /* Enable (1) or Disable (0) code generation for OSTmrDel()  */

#endif
```

这个配置文件比较的重要，主要用于μCOS-Ⅲ 源码中相关函数的配置。

11.1.3 os_cfg_app.h配置文件

os_cfg_app.h 文件的内容如下：

```
#ifndef OS_CFG_APP_H
#define OS_CFG_APP_H

/*
*********************************************************************************************************
*                                            CONSTANTS
*********************************************************************************************************
*/

/* ---------------------- MISCELLANEOUS ------------------- */
#define  OS_CFG_MSG_POOL_SIZE            100u       /* Maximum number of messages                          */
#define  OS_CFG_ISR_STK_SIZE             256u       /* Stack size of ISR stack (number of CPU_STK elements) */
#define  OS_CFG_TASK_STK_LIMIT_PCT_EMPTY  10u       /* Stack limit position in percentage to empty         */


/* ---------------------- IDLE TASK ----------------------- */
#define  OS_CFG_IDLE_TASK_STK_SIZE       128u            /* Stack size (number of CPU_STK elements)    */


/* ------------------ ISR HANDLER TASK -------------------- */
#define  OS_CFG_INT_Q_SIZE                10u            /* Size of ISR handler task queue             */
#define  OS_CFG_INT_Q_TASK_STK_SIZE      128u            /* Stack size (number of CPU_STK elements)    */

/* -------------------- STATISTIC TASK -------------------- */
#define  OS_CFG_STAT_TASK_PRIO     (OS_CFG_PRIO_MAX - 2u) /* Priority                                   */
#define  OS_CFG_STAT_TASK_RATE_HZ         10u             /* Rate of execution (10 Hz Typ.)             */
#define  OS_CFG_STAT_TASK_STK_SIZE       128u             /* Stack size (number of CPU_STK elements)    */


/* ------------------------ TICKS ------------------------- */
#define  OS_CFG_TICK_RATE_HZ            1000u   /* Tick rate in Hertz (10 to 1000 Hz)                      */
#define  OS_CFG_TICK_TASK_PRIO             1u   /* Priority                                                */
#define  OS_CFG_TICK_TASK_STK_SIZE       128u   /* Stack size (number of CPU_STK elements)                 */
#define  OS_CFG_TICK_WHEEL_SIZE           16u   /* Number of 'spokes' in tick wheel                        */

/* ------------------------ TIMERS ------------------------ */
#define  OS_CFG_TMR_TASK_PRIO      (OS_CFG_PRIO_MAX - 2u)   /* Priority                                   */
#define  OS_CFG_TMR_TASK_RATE_HZ          10u               /* Rate for timers (10 Hz Typ.)               */
#define  OS_CFG_TMR_TASK_STK_SIZE        128u               /* Stack size (number of CPU_STK elements)    */
#define  OS_CFG_TMR_WHEEL_SIZE            17u               /* Number of 'spokes' in timer wheel          */

#endif
```

这个文件主要是内核任务的配置，包括中断管理任务，空闲任务，统计任务，嘀嗒定时器任务已经定时器任务。

11.1.4 app_cfg.h配置文件

app_cfg.h 文件夹中的内容如下：

```
#ifndef  APP_CFG_MODULE_PRESENT
#define  APP_CFG_MODULE_PRESENT


/*
*********************************************************************************************************
*                                            TASK PRIORITIES
*********************************************************************************************************
*/

#define  APP_CFG_TASK_START_PRIO                              2u
#define  APP_CFG_TASK_UPDATE_PRIO                             3u
#define  APP_CFG_TASK_COM_PRIO                                4u
#define  APP_CFG_TASK_USER_IF_PRIO                            5u
#define  APP_CFG_TASK_GUI_PRIO                       (OS_CFG_PRIO_MAX - 4u)
#define  APP_CFG_TASK_GUIRefresh_PRIO                (OS_CFG_PRIO_MAX - 4u)

/*
*********************************************************************************************************
*                                         TASK STACK SIZES
*                             Size of the task stacks (# of OS_STK entries)
*********************************************************************************************************
*/

#define  APP_CFG_TASK_START_STK_SIZE                        1024u
#define  APP_CFG_TASK_UPDATE_STK_SIZE                       1024u
#define  APP_CFG_TASK_COM_STK_SIZE                          1024u
#define  APP_CFG_TASK_USER_IF_STK_SIZE                      1024u
#define  APP_CFG_TASK_GUI_STK_SIZE                          1024u
#define  APP_CFG_TASK_GUIRefresh_STK_SIZE                   1024u

#endif
```

这个文件主要用于用户任务的配置。

11.1.5 cpu_cfg.h配置文件

cpu_cfg.h 文件中的内容如下：

```
#ifndef  CPU_CFG_MODULE_PRESENT
#define  CPU_CFG_MODULE_PRESENT

                                        /* Configure CPU host name feature (see Note #1) :      */
#define  CPU_CFG_NAME_EN                     DEF_ENABLED
                                        /*   DEF_DISABLED  CPU host name DISABLED              */
                                        /*   DEF_ENABLED   CPU host name ENABLED               */

                                        /* Configure CPU host name ASCII string size ...       */
#define  CPU_CFG_NAME_SIZE                          16    /* ... (see Note #2).                */


                                           /* Configure CPU timestamp features (see Note #1) :     */
#define  CPU_CFG_TS_32_EN                  DEF_ENABLED
#define  CPU_CFG_TS_64_EN                  DEF_DISABLED
                                           /*   DEF_DISABLED  CPU timestamps DISABLED             */
                                           /*   DEF_ENABLED   CPU timestamps ENABLED              */

                                           /* Configure CPU timestamp timer word size ...         */
                                           /* ... (see Note #2) :                                 */
#define  CPU_CFG_TS_TMR_SIZE               CPU_WORD_SIZE_32

#if 0                                        /* Configure CPU interrupts disabled time ...          */
#define  CPU_CFG_INT_DIS_MEAS_EN             /* ... measurements feature (see Note #1a).            */
#endif

                                            /* Configure number of interrupts disabled overhead ... */
#define  CPU_CFG_INT_DIS_MEAS_OVRHD_NBR  1u  /* ... time measurements (see Note #1b).               */

#if 1                                       /* Configure CPU count leading  zeros bits ...         */
#define  CPU_CFG_LEAD_ZEROS_ASM_PRESENT      /* ... assembly-version (see Note #1a).                */
#endif

#if 0                                       /* Configure CPU count trailing zeros bits ...         */
#define  CPU_CFG_TRAIL_ZEROS_ASM_PRESENT     /* ... assembly-version (see Note #1b).                */
#endif
```

这个文件里面主要是 uC/CPU 相关的配置。