```c
/*******************************************************************************
 *
 *    _________  _________  ____    ____  _____               ________   ______
 *   |_   ___  ||  _   _  ||_   \  /   _||_   _|             |_   ___  |.' ____ \
 *     | |_  \_||_/ | | \_|  |   \/   |    | |      ______     | |_  \_|| (___ \_|
 *     |  _|  _     | |      | |\  /| |    | |   _ |______|    |  _|  _  _.____`.
 *    _| |___/ |   _| |_    _| |_\/_| |_  _| |__/ |           _| |___/ || \____) |
 *   |_________|  |_____|  |_____||_____||________|          |_________| \______.'
 *
 *******************************************************************************
 *
 * File          : chu.h
 * Version       : 1.0
 *
 *******************************************************************************
 *
 * Description   : Managing Chilli UART b1 state machine and commands
 *                 Manufacturer library is needed to interface it
 *                 https://eccel.co.uk/wp-content/downloads/C-library-for-B1.zip
 *
 *******************************************************************************
 *
 * Author        : Miguel Santos
 * Date          : 25.09.2023
 *
 *******************************************************************************
 *
 * MPLAB X       : 5.45
 * XC32          : 2.50
 * Harmony       : 2.06
 *
 ******************************************************************************/

#ifndef _CHU_H
#define _CHU_H

/******************************************************************************/

#include <stdint.h>
#include <stdbool.h>
#include <stddef.h>
#include <stdlib.h>
#include "system_config.h"
#include "system_definitions.h"
#include "modules/fifo.h"
#include "modules/RFIDB1ClientInterface.h"

/******************************************************************************/

/* Fifo buffer size */
#define CHU_FIFO_SIZE 16

/* Polling period must be a 100ms multiple */
#define CHU_POLLING_PERIOD_MS 500

/******************************************************************************/

/* Chilli UART State machine*/
typedef enum
{
    /* Waiting for a command */
    CHU_STATE_IDLE,

    /* Transmitting a command */
    CHU_STATE_TRANSMIT,

    /* Receiving a command */
    CHU_STATE_RECEIVE,

    /* Translating the UART message */
    CHU_STATE_TRANSLATE,

    /* Waiting for main application */
    CHU_STATE_WAIT,
```

```
74
75  } CHU_STATES;
76
77  /*****************************************************************************/
78
79  /* Chilli UART structure of global data */
80  typedef struct
81  {
82      /* The application's current state */
83      CHU_STATES state;
84
85      /* Applications's flags */
86      bool transmit;
87      bool receive;
88
89      /* Application's FIFOS descriptors */
90      S_Fifo fifoDesc_tx;
91      S_Fifo fifoDesc_rx;
92
93      /* Application's FIFOS buffers */
94      uint8_t fifoBuff_tx[CHU_FIFO_SIZE];
95      uint8_t fifoBuff_rx[CHU_FIFO_SIZE];
96
97  } CHU_DATA;
98
99  /*****************************************************************************/
100
101 /**
102  * @brief CHU_Initialize
103  *
104  * Initialize Chilli state machine, counters and FIFOs
105  * Setup objects needed for RFIDB1 interface
106  *
107  * @param  void
108  * @return void
109  */
110 void CHU_Initialize ( void );
111
112 /*****************************************************************************/
113
114 /**
115  * @brief CHU_Tasks
116  *
117  * Execute Chilli state machine, should be called cyclically
118  *
119  * @param  void
120  * @return void
121  */
122 void CHU_Tasks( void );
123
124 /*****************************************************************************/
125
126 /**
127  * @brief CHU_RFID_Response
128  *
129  * Function used by interface library to get a command received by UART
130  * Should not be called by user !
131  *
132  * @param RFIDB1_ObjectT* rfid_object Pointer to RFIDB1 object used by Chilli
133  * @param uint8_t *data Output buffer of data to be receive by UART
134  * @param uint16_t size Size of the buffer
135  */
136 void CHU_RFID_Response( RFIDB1_ObjectT* rfid_object, uint8_t *data, uint16_t size );
137
138 /*****************************************************************************/
139
140 /**
141  * @brief CHU_RFID_Request
142  *
143  * Function used by interface library to send a command by UART
144  * Should not be called by user !
145  *
146  * @param RFIDB1_ObjectT* rfid_object Pointer to RFIDB1 object used by Chilli
```

```
147     * @param uint8_t *data Input buffer of data to be send by UART
148     * @param uint16_t size Size of the buffer
149     */
150    void CHU_RFID_Request( RFIDB1_ObjectT* rfid_object, uint8_t *data, uint16_t size );
151
152    /*****************************************************************************/
153
154    /**
155     * @brief CHU_RFID_EnablePolling
156     *
157     * Send a raw command to enable polling
158     * Modifiy function as needed, based on datasheet
159     *
160     * @param  void
161     * @return void
162     */
163    void CHU_RFID_Polling( void );
164
165    /*****************************************************************************/
166
167    #endif /* _CHU_H */
168
169    /* End of File ***************************************************************/
170
```