M051 CEC 協議的實作

NuMicro® 32 位系列微控制器範例代碼介紹

檔資訊

代碼簡述	此範例使用M051來發送接收CEC命令
BSP版本	M051 Series BSP CMSIS v3.01.001
硬體平臺	M052_Tiny-EVB

1 功能描述

此範例程式使用P3.3以及timer3實現CEC協定。 使用者可以在P3.3接上拉電阻再接到HDMI匯流排中的CEC控制線上,然後就可以發送命令到CEC匯流排上的其他設備,也可以接收其他設備發送的CEC命令,如果位址匹配MCU會自動回復應答信號給發送設備

2 代碼描述

發送CEC命令:

```
/*  send CEC command: Standby*/
   SendCECCommand(Standby);


/**
 * @brief This function is send CEC command
 * @param[in] CECCommand, command index
 * @return none
 * @note this functun is called when user want to send CEC command
  */
void SendCECCommand(uint8_t CECCommand)
{
    while (u8CECTRStatus != CECIdle);     //wait CEC bus enter idle state, then start transmit
    switch (CECCommand)
    {
        case    Standby:        //
          au8CECTxData[1] = Standby;
          u8CECTxLength = 2;              //total data length should be send
          SendData(u8CECTxLength);
          while (u8CECTRStatus != CECIdle);  //waitting CEC data transfer over, customer can run their code,  and
                                             check this flag in main loop
          printf("ACKbit=:0x %x, \n", u16CECAckFlag);
          break;
    }
}
```

接收CEC資料包:

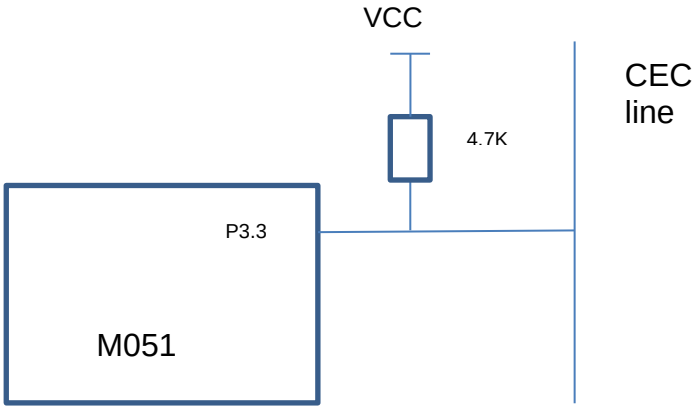
```
/* if  protocol stack received a CEC package, it will setting u8CECGetData to 1, user program should check this
flag in their main loop and process the data */
    if (u8CECGetData)       //received  CEC data from CEC line
    {
        u8CECGetData = 0;
        printf("Received:");

        for (j = 0; j < u8CECRxLength; j++)
            printf("%x, ", au8CECRxData[j]);              //print received data
           printf(" \n");
            CECDecoderCommand();        //decoder received CEC command
      }
```

3 硬體與軟體環境

- **軟體環境**
  - BSP 版本
    - M051 Series BSP CMSIS v3.01.001
  - 專案名稱
    - Smpl_CEC.uvproj

- **硬體環境**
  - 電路元件
    - **NuTiny-SDK-M051**
  - 電路圖

CEC匯流排擁有類似I2C匯流排的仲裁功能,所以我們要將CEC管腳配置為開漏輸出並且要接上拉電阻,這樣才可以將MCU管腳接到HDMI匯流排的CEC控制線上



4 目錄資訊

- EC_M051_CEC_V1.00
  - Library: Sample code header and source files.
    - CMSIS: Cortex® Microcontroller Software Interface Standard (CMSIS) V4.5.0 defined by ARM® Corp.
    - Device: CMSIS compliant device header file.
    - StdDriver: All peripheral driver header and source files.
  - SampleCode
    - Example: Source file of example code.

5 如何執行此範例程式

1. 此範例需要 Keil MDK uVersion 4.6 及以後版本
2. 通過目錄資訊(第4部分)進入sample code資料夾,找到M051_CEC.uvproj 並按兩下
3. 進入Keil編譯模式
   a. 編譯
   b. 下載
   c. 開始/停止偵錯模式
4. 進入偵錯模式
   a. 運行

6 修訂歷史

日期	版本	描述
2019-9-25	1.00	1. 初始發佈

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