M051 CEC 协议的实作

NuMicro® 32 位系列微控制器范例代码介绍

文件信息

代码简述	此范例使用M051来发送接收CEC命令
BSP 版本	M051 Series BSP CMSIS v3.01.001
硬件平台	M052_Tiny-EVB

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1 功能描述

此范例程序使用P3.3以及timer3实现CEC协议。用户可以在P3.3接上拉电阻再接到HDMI总线中的CEC控制线上，然后就可以发送命令到CEC总线上的其他设备，也可以接收其他设备发送的CEC命令，如果地址匹配MCU会自动回复应答信号给发送设备

2 代码描述

发送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数据包:

```
/* 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 硬件与软件环境

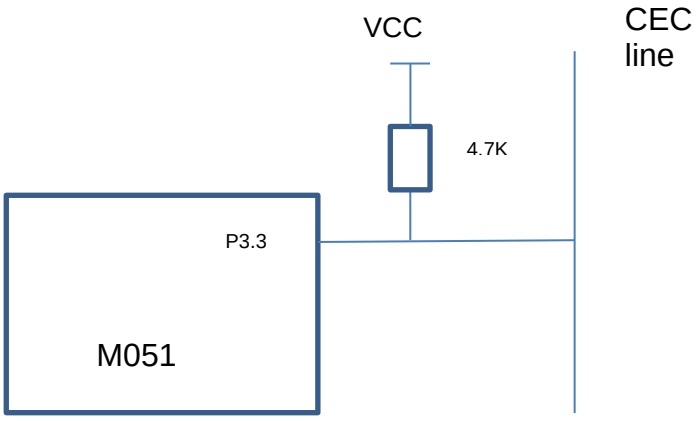
● 软件环境

- ■ BSP 版本
  - ◆ M051 Series BSP CMSIS v3.01.001
- ■ 项目名称
  - ◆ Smpl_CEC.uvproj

● 硬件环境

- ■ 电路组件
  - ◆ **NuTiny-SDK-M051**
- ■ 电路图

CEC总线拥有类似I2C总线的仲裁功能，所以我们要将CEC管脚配置为开漏输出并且要接上拉电阻，这样才可以将MCU管脚接到HDMI总线的CEC控制线上



4 目录信息

- 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 如何执行此范例程序

1. 此范例需要 Keil MDK uVersion 4.6 及以后版本
2. 通过目录信息（第4部分）进入sample code文件夹，找到M051_CEC.uvproj 并双击
3. 进入Keil编译模式
   a. 编译
   b. 下载
   c. 开始/停止调试模式
4. 进入调试模式
   a. 运行

6 修订历史

日期	版本	描述
2019-9-25	1.00	1. 初始发布

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