NUC240 SPI接口驱动ENC28J60

NuMicro® 32 位系列微控制器范例代码介绍

文件信息

代码简述	本范例代码使用 NUC240 驱动 ENC28J60，实现 uIP 功能
BSP 版本	NUC230_240_Series_BSP_CMSIS_V3.01.001
开发平台	NuTiny-SDK-NUC240V

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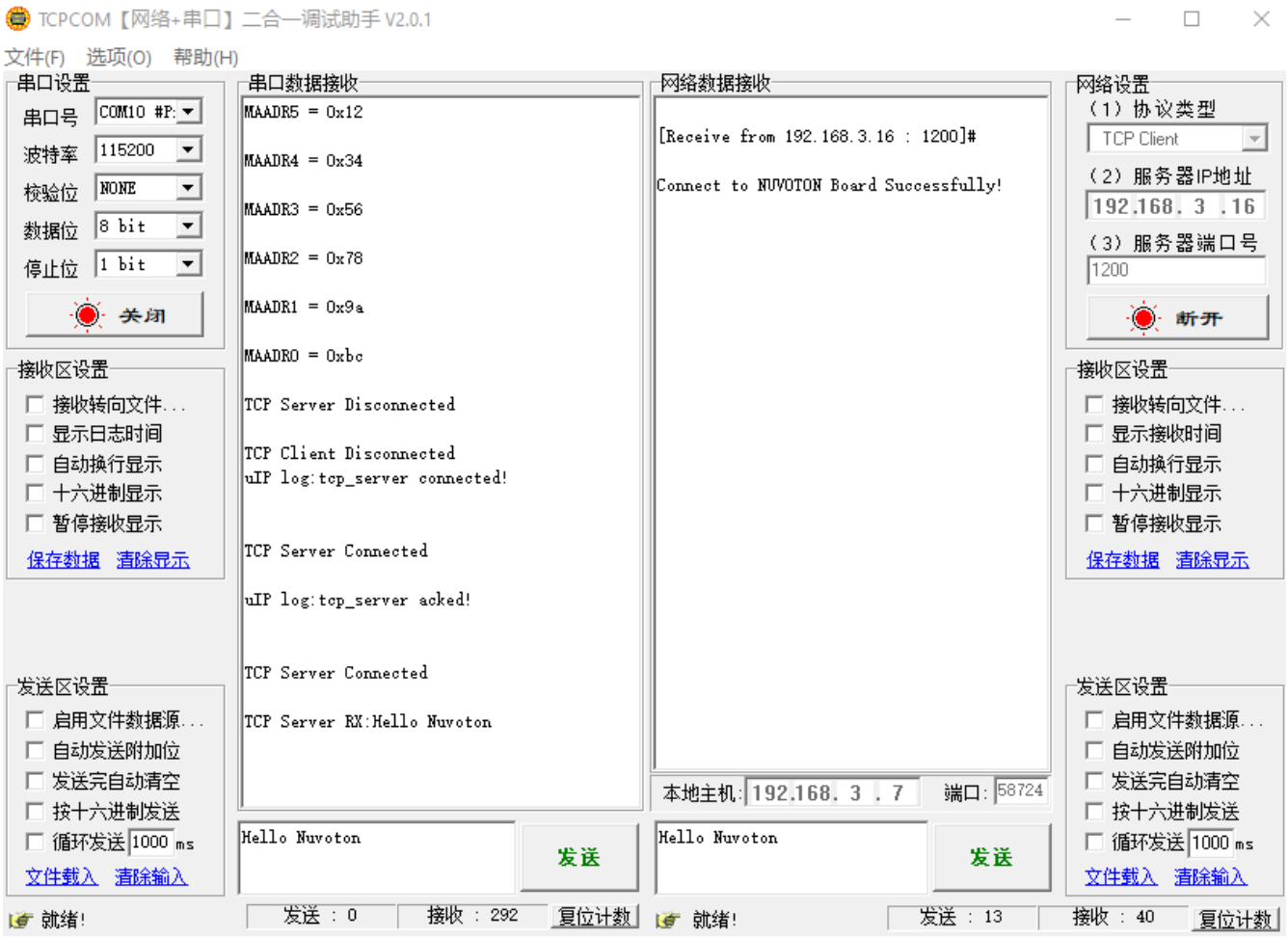
1 功能介绍

1.1 简介

本范例代码使用NUC240系列芯片，通过SPI2接口驱动ENC28J60以太网控制器，从而实现uIP功能。当ENC28J60模块通过网线连接网络后，用户可以在同一网关下使用电脑工具串口及网络助手工具查看执行结果。

1.2 执行结果



2 代码介绍

初始化 ENC28J60 接口：

```
uint32_t ENC28J60_Init(uint8_t *macaddr)
{
    uint32_t retry = 0;
    ENC28J60_Reset();
    ENC28J60_Write_Op(ENC28J60_SOFT_RESET, 0, ENC28J60_SOFT_RESET);
    while (!(ENC28J60_Read(ESTAT)&ESTAT_CLKRDY) && retry < 500)
    {
        retry++;
        CLK_SysTickDelay(1000);
    }
    if (retry >= 500)
    {
        return 1;
    }
    …….
}
```

uIP 初始化及 IP 地址设置：

```
while(tapdev_init()) // Init ENC28J60
{
    printf("ENC28J60 Init Error!");
    CLK_SysTickDelay(200000);
}
uip_init();
uip_arp_init();
uip_ipaddr(ipaddr, 192, 168, 3, 16);
uip_sethostaddr(ipaddr);
uip_ipaddr(ipaddr, 192, 168, 3, 1);
uip_setdraddr(ipaddr);
uip_ipaddr(ipaddr, 255, 255, 255, 0);
uip_setnetmask(ipaddr);
uip_listen(HTONS(1200));
tcp_client_reconnect();
```

3 软件与硬件环境

- 软件环境
  - BSP 版本
    - NUC230_240_Series_BSP_CMSIS_V3.01
  - IDE 版本
    - Keil uVersion 5.26
- 硬件环境
  - 电路组件
    - NuTiny-SDK-NUC240V
    - ENC28J60 模组
  - 示意图
    - 硬件连接采用 NuTiny-SDK-NUC240V 与 ENC28J60 模组连接。

NUC240		ENC28J60
VCC	↔	VCC
SPI2_SS（PD.0）	↔	CS
SPI2_SLK(PD.1)	↔	SCK
SPI2_MISO(PD.2)	↔	SO
SPI2_MOSI(PD.3)	↔	SI
GPIO(PC.13)	↔	RESET
VSS	↔	GND

4 目录信息

- EC_NUC240_SPI_ENC28J60_uIP_V1.00
  - Library — Sample code header and source files
    - CMSIS — Cortex® Microcontroller Software Interface Standard (CMSIS) by Arm® Corp.
    - Device — CMSIS compliant device header file
    - NuEdu — Library for NuEdu-SDK-xxxx board
    - StdDriver — All peripheral driver header and source files
  - SampleCode
    - ExampleCode — Source file of example code
  - ThirdParty
    - uIP-1.0 — uIP is a very small implementation of the TCP/IP stack that is written by Adam Dunkels <adam@sics.se>. More information can be obtained from the uIP homepage at https://github.com/adamdunkels/uip

5 如何执行范例程序

1. 根据目录信息章节进入 ExampleCode 路径中的 KEIL 文件夹，双击 NUC240_SPI_ENC28J60.uvproj。
2. 进入编译模式接口
   a. 编译
   b. 下载代码至内存
   c. 进入 / 离开除错模式
3. 进入除错模式接口
   a. 执行代码

6 修订纪录

Date	Revision	Description
Sept. 17, 2019	1.00	1. 初始发布.

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