marvell_wlan_host_driver

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README License

Marvell WLAN Host Driver

A basic 88W8801 WLAN host driver, via SDIO interface on STM32F407.

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Languages

88W8801 WLAN basic host driver, passed debugging on STM32F4 series microcontroller. The driver runs based on callback functions and does not require an operating system.

Interface List / Interface List

- SDIO (connects to wireless module, uses DMA to**simplify transfers**)
- SPI (SPI1 is connected to the onboard Flash for firmware access, SPI2 is connected to the TFT-LCD for debugging)
- GPIO and other miscellaneous

Device List / Device List

- Single desk *STM32F407*
- Wireless module *88W8801*
- Board Flash *W25Q16DV*
- 128*160 TFT-LCD driving core piece *ST7735S*

Module Description / Module Description

- *88W8801* 详见Reference / Reference
  - *Flash* Read and write Flash, access firmware
  - *lwIP* TCP/IP protocol stack (version number 2.1.3), add DHCP server and NAT module, View transplantation/modification content< /span>
  - *SDIO* Device communication interface implementation
  - *Core* processes packets and calls related modules
  - *Wrapper* Simple interface encapsulation
- *Debug/ST7735* Output debugging information to TFT-LCD
- *SysTime* Time management (using SysTick interrupt, no overflow control)
- For other instructions, please view the README in each directory.

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Configuration Files / Configuration Files

- Wireless module 88w8801.h
- lwIP lwipopts.h
- TFT-LCD st7735.h
- For other configurations, please view *.h in directories at all levels.

Example Project / Example Project

Please use*STM32CubeMX* to openCaptureHandler.ioc and generate After the project, the remaining contents in the *example* directory (excluding STM32F407VET6.pdf) respectively**overwrite**the original files, and finally**create a new one** *Module* directory and add all modules.

- The code is simple and for reference only
- The example project is configured with DCMI and some GPIO, and relevant modules can be added to implement image transmission.
- The software version numbers are as follows:
    - Keil uVision: *MDK-ARM 5.38a*

      STM32F4xx_DFP: *2.17.0*
    - STM32CubeMX: *6.8.0*

      STM32Cube FW_F4: *1.27.1*

Reference / Reference

1. STMicroelectronics, Datasheet DS8626
2. STMicroelectronics, Reference Manual RM0090
3. IoT Wireless Link, Marvell 88W8801 SDIO Wi-Fi

4. SD Card Association, SDIO Simplified Specification (Version 3.00)
5. Winbond, W25Q16DV Datasheet
6. IEEE, IEEE Std 802.11-2016
7. Swedish Institute of Computer Science, lwIP - A Lightweight TCP/IP Stack