



链滴

汉朔价签 MCU: TLSR8359 老 6

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原文链接: <https://ld246.com/article/1681979425953>

来源网站: [链滴](#)

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我用的是2.9寸三色



型号: Steller-L3@ E31A

板号: HS_EL5120_9M

MCU: TLSR8359F512ET32

屏幕: 三色/黑白红

TLSR8359这个芯片很有意思，芯片**TLSR8359** 官网说明，文档，各种信息都没有说有**bluetooth**，国大佬逆向发现这soc带低功耗蓝牙**BLE**，这是什么操作??

Enabling BLE on an RF only E-Paper Price Tag with a custom firmware



Aaron Christophel

1.11万位订阅者



已订阅

2,726次观看 2021年11月7日

Quick showing of a very undocumented feature of the TLSR8359 SOC

Seems it has the exact same features as an TLSR8251 ;)

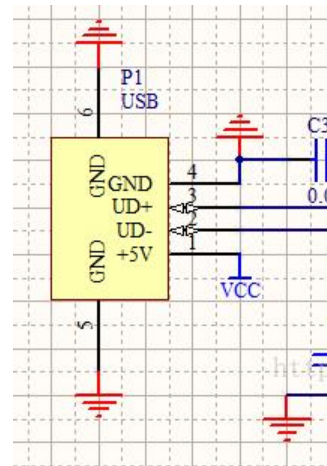
收起

开始:

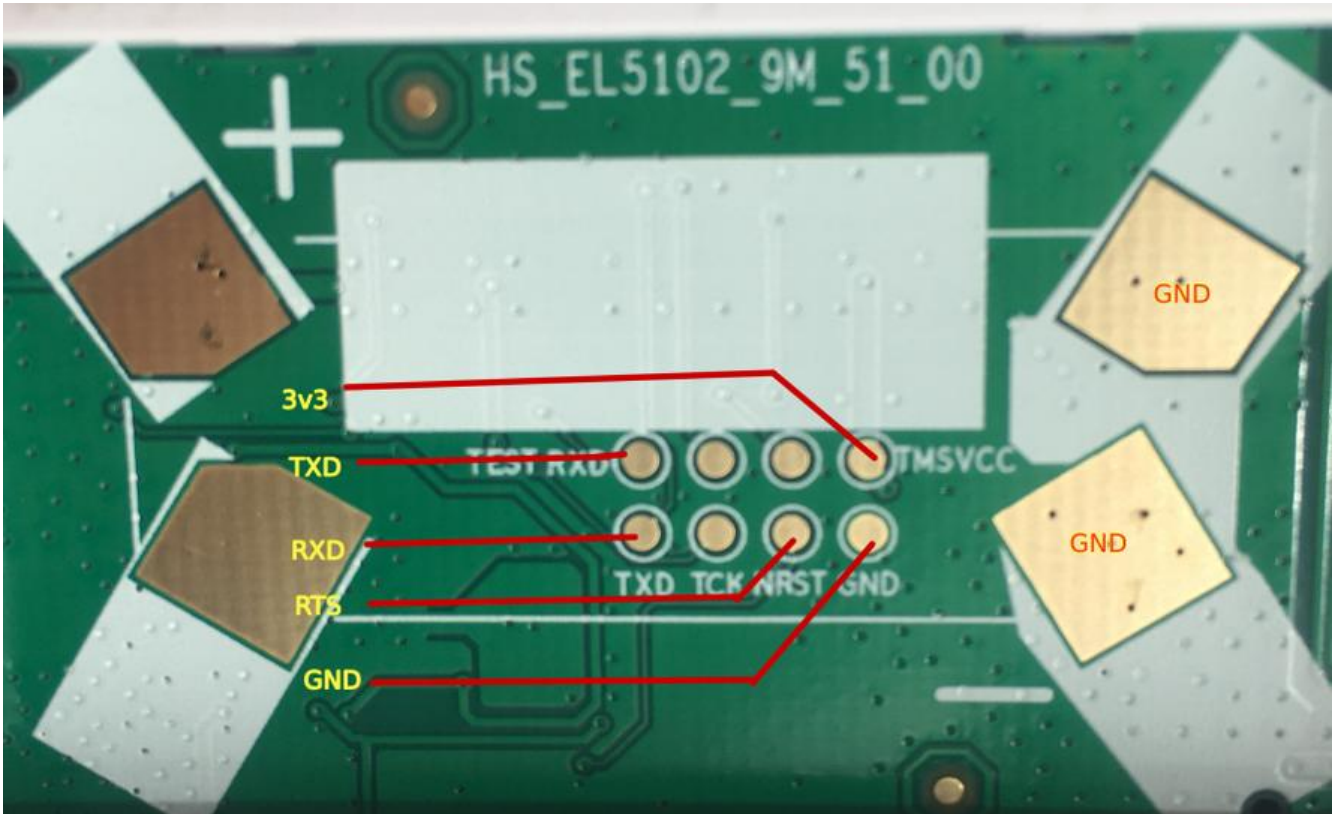
- 先下载代码和工具: <https://github.com/reece15/stellar-L3N-etag>

reece15 fix: update readme		e5d17f4 on Jul 7, 2022	97 commits
Compatible_models	Added more ESL models		last year
Firmware	fix: add font16zh		10 months ago
Image2ESL	fix: update readme		9 months ago
docs	docs: update docs		10 months ago
images	fix: update readme		9 months ago
tools	feat: add image uploader		10 months ago
web_tools	fix: update css style		10 months ago
.gitignore	Added support for 3 Color ESL BWR		last year
Hanshow_Stellar_MN@_E31H_Pin...	Add files via upload		2 years ago
README_en.md	fix: add readme for CN		10 months ago
USB_UART_Flashing_connection.jpg	Add files via upload		2 years ago
readme.md	fix: update readme		9 months ago

- 用usb转ttl工具得有RTS的，PL2303HX没有RTS，我用的CH340G，第14脚就是RTS



- 价签连线图



编译固件

1. 进入Firmware目录运行命令：`make clean && make`得到bin文件

```

mak.dln      libconv-2.dll  make          makelt.exe  src
(base) alanfans@7000:~/data/git/stellar-L3N-etag/Firmware$ make clean && make
rm ./out/application/app/usbaud.o ./out/application/app/usbcdc.o ./out/application/app/uskbd.o ./out/application/app/usbmouse.o
./out/application/keyboard/keyboard.o ./out/application/print/putchar.o ./out/application/print/u_printf.o ./out/application/usbstd/usb
out/application/usbstd/usbdesc.o ./out/application/usbstd/usbhw.o ./out/common/breakpoint.o ./out/common/log.o ./out/common/selection_sort.o
./out/common/string.o ./out/common/utility.o ./out/vendor/common/blt_common.o ./out/vendor/common/blt_fw_sign.o ./out/vendor/common/blt_led.o
./out/vendor/common/blt_soft_timer.o ./out/vendor/common/tl_audio.o ./out/tinyFlash/tinyFlash.o ./out/drivers/8258/adc.o ./out/drivers/8258/aes.o
./out/drivers/8258/analog.o ./out/drivers/8258/audio.o ./out/drivers/8258/bsp.o ./out/drivers/8258/ci.o ./out/drivers/8258/emf.o ./out/drivers/8258/flash.o
./out/drivers/8258/gpio_8258.o ./out/drivers/8258/i2c.o ./out/drivers/8258/led.o ./out/drivers/8258/qdec.o ./out/drivers/8258/rf_pa.o ./out/drivers/8258/s7816.o
./out/drivers/8258/spi.o ./out/drivers/8258/timer.o ./out/drivers/8258/uart.o ./out/drivers/8258/watchdog.o ./out/div_mod.o ./out/app.o ./out/app_att.o
./out/battery.o ./out/ble.o ./out/ble_service.o ./out/i2c.o ./out/cmd_parser.o ./out/flash.o ./out/etime.o ./out/epd_spi.o ./out/epd.o ./out/epd_bw_213.o
./out/epd_296.o ./out/epd_bwr_213.o ./out/epd_bw_213_ice.o ./out/ota.o ./out/led.o ./out/uart.o ./out/nfc.o ./out/tiff4.o ./out/one_bit_display.o
./out/main.o ./out/cstartup_825x.o ./out/ATC_Paper.elf ./out/./ATC_Paper.bin ./out/ATC_Paper.lst

chmod_all
mkdir -p ./out/application/app ./out/application/keyboard ./out/application/print ./out/application/usbstd ./out/application/TLV_F
./out/common ./out/vendor/common ./out/tinyFlash ./out/drivers/8258

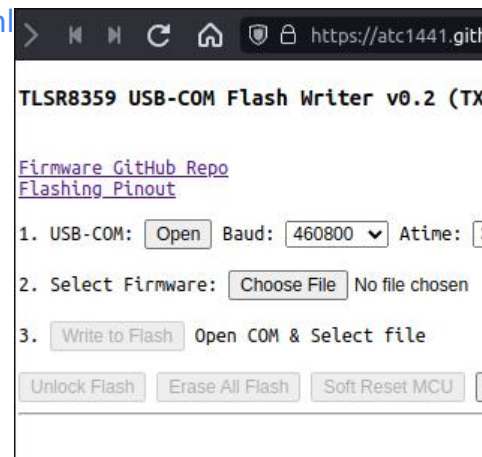
Building file: components/application/app/usbaud.c
Building file: components/application/app/usbcdc.c
Building file: components/application/app/uskbd.c
Building file: components/application/app/usbmouse.c
Building file: components/application/keyboard/keyboard.c
Building file: components/application/print/putchar.c
Building file: components/application/print/u_printf.c
Building file: components/application/usbstd/usb.c
Building file: components/application/usbstd/usbdesc.c
Building file: components/application/usbstd/usbhw.c
Building file: components/common/breakpoint.c
Building file: components/common/log.c
Building file: components/common/selection_sort.c
Building file: components/common/string.c
Building file: components/common/utility.c
Building file: components/vendor/common/blt_common.c
Building file: components/vendor/common/blt_fw_sign.c
Building file: components/vendor/common/blt_led.c
Building file: components/vendor/common/blt_soft_timer.c
Building file: components/vendor/common/tl_audio.c
Building file: components/tinyFlash/tinyFlash.c
Building file: components/drivers/8258/adc.c
Building file: components/drivers/8258/aes.c

```

- windows可以用

makeit.exe clean && makeit.exe -j

2. 打开 https://atc1441.github.io/ATC_TLSR_Paper_UART_Flasher.html



- 波特率选择默认 460800, Atime默认, 文件选择刚才编译出来的bin文件
- 先点击unlock,再点击write to flush,等待完成。成功后, 屏幕会自动刷新, 如果不自动刷新可以用RS线与GND连接一下
- 注意事项: CH340G上可以不焊RTS, 刷机时一定要连接, 刷机时ttl板会闪蓝灯, 价签也会闪蓝灯,
- 刷完会有S24_XXXXXX的信息在屏幕上, 没有就看固件有没有问题, 我这个价签并没有nfc,所以我释了app.c里的init_nfc()

```
#include <stdint.h>
#include "tl_common.h"
#include "app.h"
#include "main.h"
#include "drivers.h"
#include "stack/ble/ble.h"
#include "vendor/common/blt_common.h"
```

```
#include "battery.h"
#include "ble.h"
#include "flash.h"
#include "ota.h"
#include "epd.h"
#include "etime.h"
#include "bart_tif.h"
```

```
RAM uint8_t battery_level;
RAM uint16_t battery_mv;
RAM int16_t temperature;
```

```
// Settings
extern settings_struct settings;
```

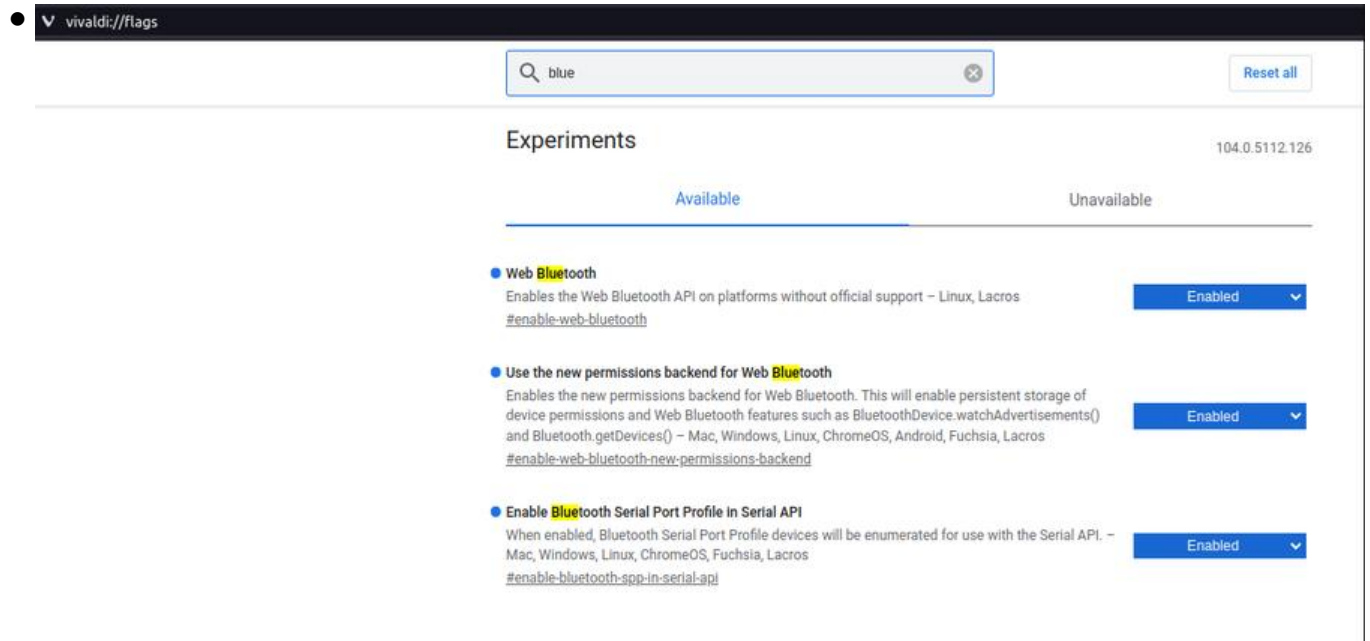
```
_attribute_ram_code_ void user_init_normal(void)
{
    // this will get executed one time after power up
    random_generator_init(); // must
```

```
init_time();
init_ble();
init_flash();
// init_nfc();

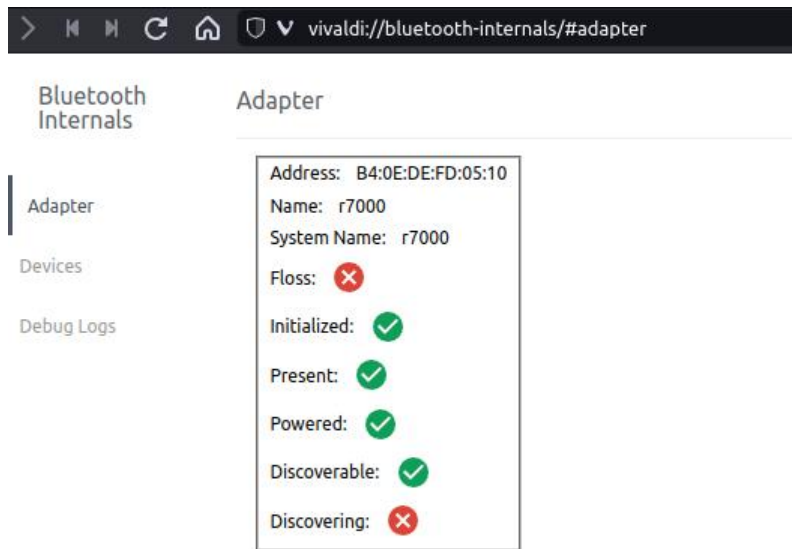
}
```

3. 蓝牙操作

- 浏览器要打开蓝牙选项不然报错 <chrome://flags>



- 浏览器自带的蓝牙调试地址 <chrome://bluetooth-internals/>



-
- 1. 运行 `cd web_tools && python -m http.server 9000`
-

2. 打开 <http://127.0.0.1:9000> 后在页面上链接蓝牙



3. 愉快上传图片了

上传图片到屏幕





4. OTA升级: https://atc1441.github.io/ATC_TLSR_aper_OTA_writing.html

Welcome to ATCnetz.de ATC_TLSR_Paper BLE control,
Click connect and select the TLSR E-Paper display you want to talk to.

The ATC_TLSR_Paper Firmware can be found here: https://github.com/atc1441/ATC_TLSR_Paper

Jpload status

Please select a .bin file you want to flash to the Telink BLE device.
Connect to the Display and click on "Send Firmware" after the display is connected.
After all bytes are uploaded the display will do a CRC check and flash and reboot into the new firmware if all

Select Firmware: No file chosen

Hour offset:

Force EPD Model:

相关来源:

<https://github.com/reece15/stellar-L3N-etag>

<http://javabin.cn/2022/epaper.html>

<https://blog.csdn.net/u010752777/article/details/128591045>

<https://github.com/CursedHardware/hanshow>

<https://oshwhub.com/article/research-of-hanshow-epaper>

<http://wiki.telink-semi.cn/wiki/chip-series/TLSR835x-Series/>

http://wiki.telink-semi.cn/doc/ds/DS_TLSR8359-E_Datasheet%20for%20Telink%20ULP%202.4Hz%20RF%20SoC%20TLSR8359.pdf