Smart TOF
慧视界 智未来

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TCM-Ex固件升级说明

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❖ 概要

- 本文档主要帮助模组使用USB固件升级使用。

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准备工作（一）

- 硬件环境准备
  - 模组通过USB线和PC连接好，红色LED常亮。
  - 如果想要串口看日志，也可以接上串口小板。

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- 软件工具准备
  - SmartTofCli工具
  - 升级使用的固件

  注：工具可以在https://github.com/smarttofsdk/SDK/tree/master/windows/tools/SmartTofCli/里面下载

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- 第一步：进入windows\tools\SmartTofCli\目录，命令行启动 dmcam-cli.exe,命令如下：
  - dmcam-cli.exe （默认进入交互模式）

在运行cli之前，我们可以通过串口查看当前FW版本为108


```
F:\every\2018-3\smarttof_sdk_v1.15\Windows\tools\SmartTOFCli>dmcam-cli.exe
dmcam>
```

```
dmcam> help
  clear        Clear the screen
  echo         Echo each argument on a new line
  flash        Write the provided firmware to the target flash
  help         Provide information about specified command
  info         Print information about the currently opened device
  print        Print information about the device
  quit         Exit the CLI
  regwr        Write register of specified target and address
  regrd        Read register of specified target and address
  rx           Receive frames and write to a file
  read         Read frames to buffer
  set          Set device settings
  version      Host software and device version information

dmcam> info
  Vendor  : Digtal Miracle
  Product : TM-E1-2.0

  Capability:
    max frame width    : 320
    max frame height   : 240
    max frame depth    : 2
    max fps            : 60
    max integrate time(us) : 333

  Serial info: 0x16009020, 0xAA6D94A9, 0x582C8E80

  DFU Information:
```

进入cli后，也可以通过info命令查看版本信息

```
tch
[INF]Wait for upgrading...
[DBG]   * stdio uart: 115200 bps, txbuf=32, rxbuf=4
[INF]---- FW started ----
[INF] * HW:EVB-v100, HCLK=180000000 Hz
[INF] * SW:DMCAM_FW-v1080 Build@Jan 24 2018
[INF]--------------------

[DBG]Platform init...
[DBG] -> init time layer
[DBG] -> init led driver: 3 leds
[DBG] -> init adc driver
[DBG] -> init i2c driver
[DBG] -> init uart driver

----------   Test Start   ----------
  1 cases to test
------------------------------------
#0 -> integration test
```

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- 第二步，开始发送升级命令：flash mcu xxx.bin

1.查看帮助信息命令

3.升级到109版本

```
dmcam> help flash          帮助命令
Usage: flash <target> <firmware>      升级命令格式
Perform a firmware upgrade!

       ------------------------------------------------
           Option Description
       ------------------------------------------------
           target <mcu> or <TFC>

           firmware name of the firmware
       ------------------------------------------------
```

```
dmcam> flash mcu smart_tof_e2_fw_20180306.bin    升级MCU固件

2018/03/06 19:19:42.199[8312][INF] [dmcam_bin_data_write] name:temp.bin, type:0
 version:111
2018/03/06 19:19:42.200[8312][INF] [dmcam_bin_data_write] File size:89819
2018/03/06 19:19:42.201[8312][INF] [dmcam_bin_data_write] File read ok,89819
2018/03/06 19:19:42.201[8312][INF] [dmcam_bin_data_write] Firmware image file ]
aded.
2018/03/06 19:19:42.242[8312][INF] [dmcam_bin_data_write] Version:108,type:0, a
dr:0x10103000,data size:89819
2018/03/06 19:19:42.243[8312][INF] [dmcam_bin_data_write] send action info
2018/03/06 19:19:42.243[8312][INF] [al_data_send_action_info] type = 0, version
= 111, size = 89819
2018/03/06 19:19:42.304[8312][INF] [dmcam_bin_data_write] read ack: next=0, sta
us=3
2018/03/06 19:19:42.304[8312][INF] [dmcam_bin_data_write] INFO ack ok
2018/03/06 19:19:42.305[8312][INF] [dmcam_bin_data_write] Wait flash erase.....
2018/03/06 19:19:43.086[8312][INF] [dmcam_bin_data_write] Download.....
2018/03/06 19:19:49.800[8312][INF] [dmcam_bin_data_write] Data transfer finishe
2018/03/06 19:19:49.821[8312][ERR] [dmcam_ll_exe_cmd] exe usb cmd failed: LIBUS
_ERROR_IO
2018/03/06 19:19:49.821[8312][WRN] [dmcam_bin_data_write]   * Wait board to rese
```

2.版本号低会有错误提示

```
2018/02/02 10:16:23.001[11988][INF] [dmcam_bin_data_write] Version:108,type:0, a
dr:0x10103000,data size:-1
2018/02/02 10:16:23.001[11988][ERR] [dmcam_bin_data_write] Wrong version<Target:
108,Now:108>      如果出错，注意Now要比target大才可以升级
Please reset device, and reopen this tool!
```

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固件升级步骤说明(方法二)

- 直接用命令行升级，输入命令：dmcam-cli.exe –f xxx.bin

- -f 参数后面跟上固件名字，如下图

```
F:\TOF_NEW\sdk\SmartTOFCli\bin\x86>dmcam-cli.exe -f smart_tof_e2_fw_20180306
```

- 进入windows\tools\SmartTOFCli目录，双击运行 fw_upgrade.bat批处理文件

  模组自动将当前目录下的固件进行升级，如果当前升级固件版本不匹配则进行错误提示。

- 通过日志,查看升级结果


```
dmcam> flash mcu smart_tof_e2_fw_20180306.bin

2018/03/06 19:19:42.199[8312][INF] [dmcam_bin_data_write] name:temp.bin, type:0,
 version:111
2018/03/06 19:19:42.200[8312][INF] [dmcam_bin_data_write] File size:89819
2018/03/06 19:19:42.201[8312][INF] [dmcam_bin_data_write] File read ok,89819
2018/03/06 19:19:42.201[8312][INF] [dmcam_bin_data_write] Firmware image file lo
aded.
2018/03/06 19:19:42.242[8312][INF] [dmcam_bin_data_write] Version:108,type:0, ad
dr:0x10103000,data size:89819
2018/03/06 19:19:42.243[8312][INF] [dmcam_bin_data_write] send action info
2018/03/06 19:19:42.243[8312][INF] [al_data_send_action_info] type = 0, version
= 111, size = 89819
2018/03/06 19:19:42.304[8312][INF] [dmcam_bin_data_write] read ack: next=0, stat
us=3
2018/03/06 19:19:42.304[8312][INF] [dmcam_bin_data_write] INFO ack ok
2018/03/06 19:19:42.305[8312][INF] [dmcam_bin_data_write] Wait flash erase.....
2018/03/06 19:19:43.086[8312][INF] [dmcam_bin_data_write] Download.....
2018/03/06 19:19:49.800[8312][INF] [dmcam_bin_data_write] Data transfer finished
.
2018/03/06 19:19:49.821[8312][ERR] [dmcam_ll_exe_cmd] exe usb cmd failed: LIBUSB
_ERROR_IO
2018/03/06 19:19:49.821[8312][WRN] [dmcam_bin_data_write]  * Wait board to reset
...
2018/03/06 19:19:49.822[8312][WRN] [dmcam_bin_data_write] ---------------------
-----------------------------------
2018/03/06 19:19:49.822[8312][WRN] [dmcam_bin_data_write] !!! DO NOT RESET or PO
WER OFF the board until return !!!!
2018/03/06 19:19:49.823[8312][WRN] [dmcam_bin_data_write] ---------------------
-----------------------------------
Firmware download finished!
Please reset device, and reopen this tool!
*****************************************************************
         FW UPGRADE OK
*****************************************************************
```

- 通过info查看版本信息

```
dmcam> info
 Vendor  : Digtal Miracle
 Product : TM-E2-1.0

 Capability:
   max frame width       : 320
   max frame height      : 240
   max frame depth       : 2
   max fps               : 60
   max integrate time(us) : 1500

 Serial info: 0x1600C020, 0xAA6D94A9, 0x582C95B9

 DFU Information:
   MCU Firmware Version : 112
   TFC Firmware Version : 0
```

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- Q：升级过程中有没有什么提示？

- A：除了串口日志外，升级数据下载时候，黄色LED常亮，升级结束后会灭。固件下载完毕后，黄灯灭了后，过一段时间红灯会闪一下，然后红灯常亮。

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END