# **CMSIS-DAP/DAPLink User Manual**

- Introduction
- Feature
- MDK Config
  - Debugger Select
  - Target Detect
  - Flash Algorithm
  - Reset Setting
- DAPLink Usage
  - Drag-and-Drop
  - Firmware Upgrade

## Introduction

CMSIS-DAP/DAPLink is a cmsis-dap debugger made by MuseLab which support SWD/JTAG and a USB CDC serial port.

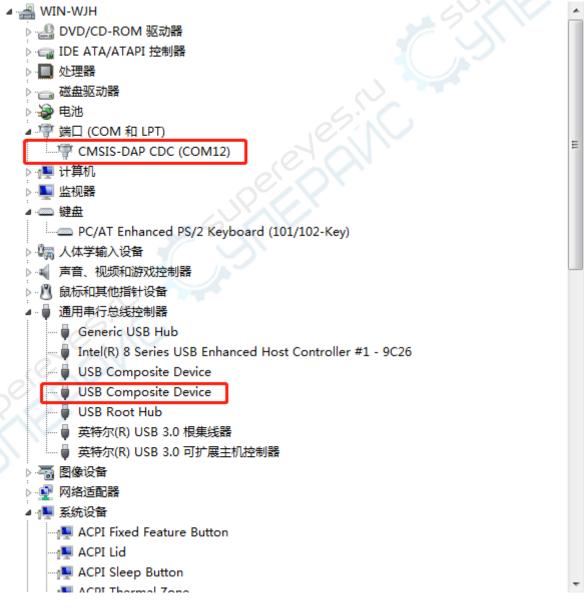


### Feature

- open source hardware/software
- 5V/3.3V power supply to target board
- SWD interface
- JTAG interface
- USB CDC serial port
- DAPLink is a upgrade of CMSIS-DAP, which support drag-n-drop program
- DAPLink support drag-n-drop upgrade the firmware

# **MDK config**

plug the debugger into PC USB, if everything is ok, there will appear a CDC port and a USB HID device



#### **Debugger Select**

#### select CMSIS-DAP Debugger in Option -> Debug

| C Use Simulator                                                 |                                                                    | Asm Linker Debug Vtilities                                             |  |  |  |
|-----------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------------|--|--|--|
| <ul> <li>Load Applicat</li> <li>Initialization File:</li> </ul> |                                                                    | ✓ Load Application at Startup     ✓ Run to main() Initialization File: |  |  |  |
| Breakpoin                                                       | Session Settings<br>ts IV Toolbox<br>indows & Performance Analyzer | Restore Debug Session Settings                                         |  |  |  |
|                                                                 |                                                                    |                                                                        |  |  |  |
| CPU DLL:                                                        | Parameter:                                                         | Driver DLL: Parameter:                                                 |  |  |  |
| SARMCM3.DLL                                                     | -REMAP                                                             | SARMCM3.DLL                                                            |  |  |  |
|                                                                 |                                                                    |                                                                        |  |  |  |

#### **Target Detect**

click Settings in Option -> Debug, recommend to select the swd port, and config the frequence to 10MHz

| CMSIS-DAP                                  | pter — SW D |                                                           | Device Name           | Mov                                                         |
|--------------------------------------------|-------------|-----------------------------------------------------------|-----------------------|-------------------------------------------------------------|
| Serial No: 0001A0000001                    | SWDI        | O Ox1BA01477                                              | ARM CoreSight SW-DP   | Up                                                          |
| Firmware Version: 2.0.0                    |             |                                                           |                       | Dov                                                         |
| SWJ Port: SW                               |             | utomatic Detection<br>1anual Configuration<br>dd Delete U | ID CODE: Device Name: | AP: 0x00                                                    |
| Connect & Reset Options<br>Connect: Normal | Reset: SYSR | ESETREQ -                                                 |                       | wnload Options<br>Verify Code Download<br>Download to Flash |
|                                            |             |                                                           |                       |                                                             |

#### **Flash Algorithm**

you need to config the flash algorithm for your target mcu, here is a example with stm32f1x

Note: select the Reset and Run for target auto reset after program done.

| Description       Device Size       Device Type       Address Range         STM32F10x Med-density Flash       128k       On-chip Flash       08000000H - 0801FFFFH         Stat: | <ul> <li>Erase Sectors</li> <li>Do not Erase</li> </ul> | <ul> <li>✓ Program</li> <li>✓ Verify</li> <li>✓ Reset and Run</li> </ul> |        | gorithm<br>20000000 Size: 0x10 | 00 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|--------------------------------------------------------------------------|--------|--------------------------------|----|
| Start: Size:                                                                                                                                                                     | ription                                                 |                                                                          |        |                                |    |
|                                                                                                                                                                                  |                                                         |                                                                          | Start: | Size:                          |    |
| Add Remove                                                                                                                                                                       |                                                         |                                                                          | 1      |                                |    |

# Reset Setting

Generally, you may need to start the mcu when program done, config the Reset type to SYSRESETREQ here and select Reset and Run in the Flash Download Page above.

| CMSIS-DAP 👻                                                                |               | Error                          | Move                 |
|----------------------------------------------------------------------------|---------------|--------------------------------|----------------------|
| Serial No: 0001A0000001                                                    | SWDIO         | SWD/JTAG Communication Failure | Up                   |
| Firmware Version: 2.0.0                                                    |               |                                | Dow                  |
| V SWJ Port: SW V<br>Max Clock: 10MHz V<br>Debug<br>Connect & Reset Options |               | ual Configuration Device Name: | AP:                  |
|                                                                            | eset: SYSRESI |                                | Verify Code Download |
|                                                                            |               |                                |                      |

# **DAPLink Usage**

#### Drag and Drop

plug the DAPLink into PC USB, there will be a USB DISK appear called DAPLink,

| ∠ i | 设备和 | 巡动器 (8)                 |              |                        |                                     |
|-----|-----|-------------------------|--------------|------------------------|-------------------------------------|
|     | 8   | <b>百度网盘</b><br>双击运行百度网盘 | <b>i</b>     | 我的手机                   | 本地磁盘 (C:)<br>3.13 GB 可用 , 共 53.2 GB |
|     |     | 软件 (D:)                 |              | 新加卷 (E:)               | 新加卷 (F:)                            |
| ļ   |     | 6.04 GB 可用 , 共 65.4 GB  |              | 9.30 GB 可用 , 共 59.6 GB | 25.3 GB 可用 , 共 59.5 GB              |
|     |     | My Passport (G:)        | 0            | DAPLINK (I:)           |                                     |
| 1   |     | 178 GB 可用 , 共 931 GB    | $\checkmark$ |                        |                                     |
| -   |     | _ '                     |              |                        |                                     |

DAPLink support drag and drop program, just drag the binary with suffix hex or bin into the DAPLink, the DAPLink will do all the program work.

Tips: one firmware can only support one type of MCU drag-n-drop program, for different type of MCU, you may need to compile the source yourself.

#### Firmware Upgrade

DAPLink implement a bootloader with USB MSD, which made it very easy for the firmware upgrade.

- 1. short the nRST and GND.
- 2. plug the DAPLink into PC USB, a USB DISK named MAINTAINENCE will appear.
- 3. disconnect the nRST and GND.
- 4. drag the new firmware into the MAINTAINENCE, wait for a few moment, then upgrade done, a new USB DISK DAPLINK will appear with replace of MAINTAINENCE