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A-Link/A-Link Pro Hardware

User Manual

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For additional information or inquiry, please contact ABOV Semiconductor or visit the website
ABOV Semiconductor (www.abovsemi.com)

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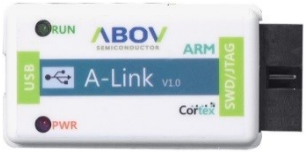
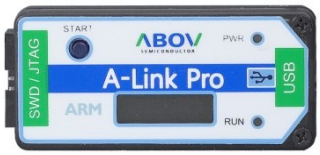
Chapter 1. Getting started

1.1 Hardware introduction

The A-Link/A-Link Pro adaptor is a USB CMSIS-DAP debugger and programmer (using an SWD interface). It can be used as a debugging adaptor for ARM Cortex chips or as a simple on-board programmer. The A-Link/A-Link Pro adaptor supports KEIL, IAR, and Eclipse IDEs. A-Link is simply a CMSIS-DAP dongle, while A-Link Pro supports on-board programming without a PC as well.

1.2 Hardware specifications

The A-Link/A-Link Pro adaptor provides the USB and serial wire debug (SWD) interfaces: When you develop your application, a USB connector is connected to the PC host and the SWD interface is connected to the target device. If you program a target device without a PC (standalone mode), the USB interface stays open, but SWD is connected to the target device.

Function	A-Link	A-Link Pro
CMSIS-DAP (debugging)	O	O
Programmer (PC host mode)	O	O
Programmer (Standalone mode)	X	O
Power source	USB (Enumerated)	1. USB (*1) 2. Target system
Interface voltage	2.5–5.5 V	1.8–6.0 V
Exterior		

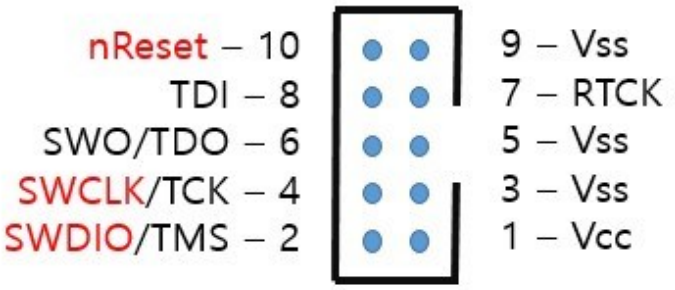
*1) If the USB is enumerated, it works in PC host mode and not in standalone mode.

Chapter 2. Hardware features

2.1 A-Link hardware features

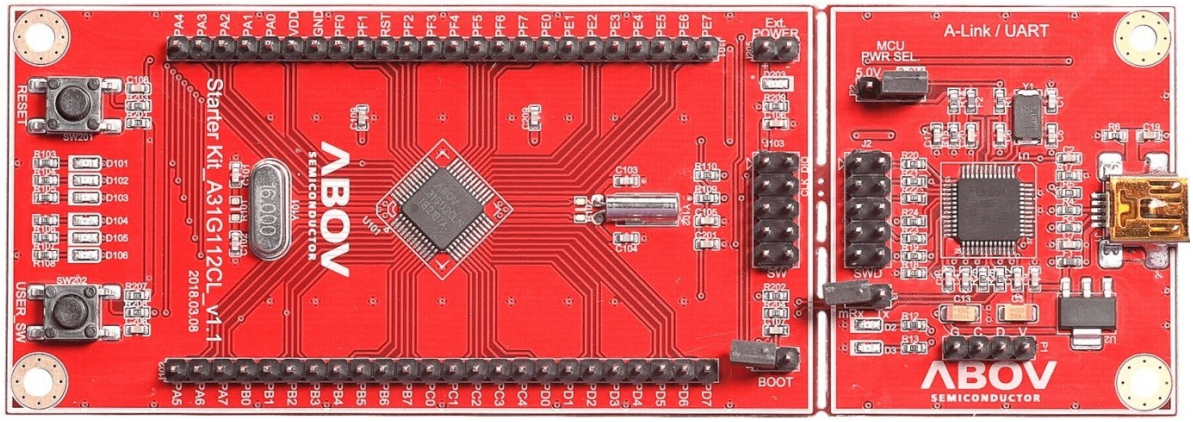
A-Link is basically a CMSIS-DAP debugger dongle using compiler IDEs. Using the ABOV Firmware Downloader software, you can perform programing in PC host mode. The USB connection uses the HID protocol, so it does not require a specific driver.

The SWD connector pin assignment is shown in the following figure:



Note: If the target system program changes the SWD port to another function, then the SWD interface cannot be established. We recommend connecting the nReset signal of the target IC to A-Link.

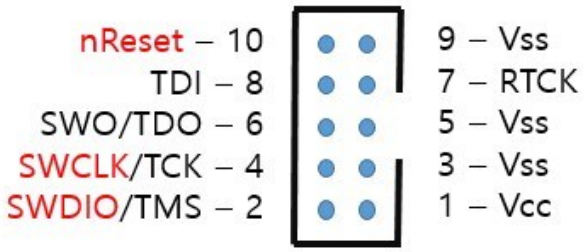
Some of the ABOV device demo boards include A-Link CMSIS-DAP shown in the following figure. This embedded A-Link is identical to the A-Link dongle. You can cut this board into a demo board and an A-Link board, if needed.



2.2 A-Link Pro hardware features

A-Link Pro includes all the A-Link features. The USB connection uses HID protocol, so it does not require a specific driver.

The SWD connector pin assignment is the same as that of A-Link.



It supports on-board programming—called “standalone mode”—that does not require a PC host. Programming and verification will start as soon as you press the only button. Messages are displayed on the OLED during programming.

Note: If the target system program changes the SWD port to another function, then the SWD interface cannot be established. We recommend connecting the t nReset signal of the target IC to A-Link Pro.

If a PC connection is detected during standalone-mode operations, then A-Link Pro switches over to a CMSIS-DAP dongle.

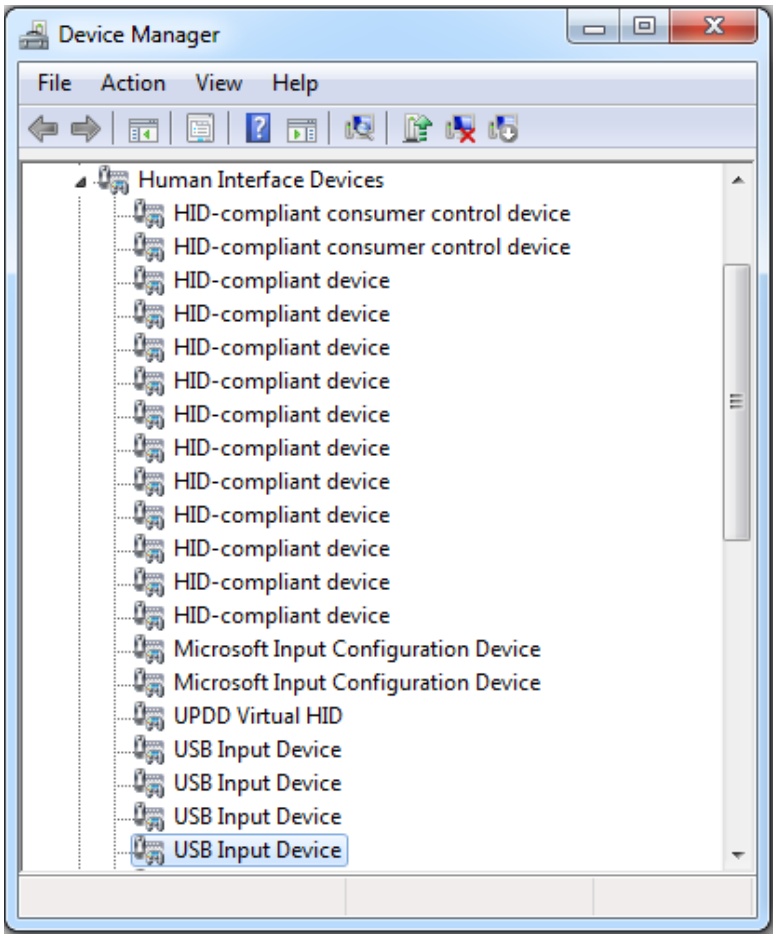
2.3 License agreement

GitHub - ARMmbed/DAPLink – Apache License Version 2.0

Chapter 3. Hardware settings

3.1 Hardware recognition

The A-Link/A-Link Pro USB interface uses the HID protocol. All versions of Microsoft Windows support the HID interface, so additional installation of a kernel driver is not required. You may just connect and use it.



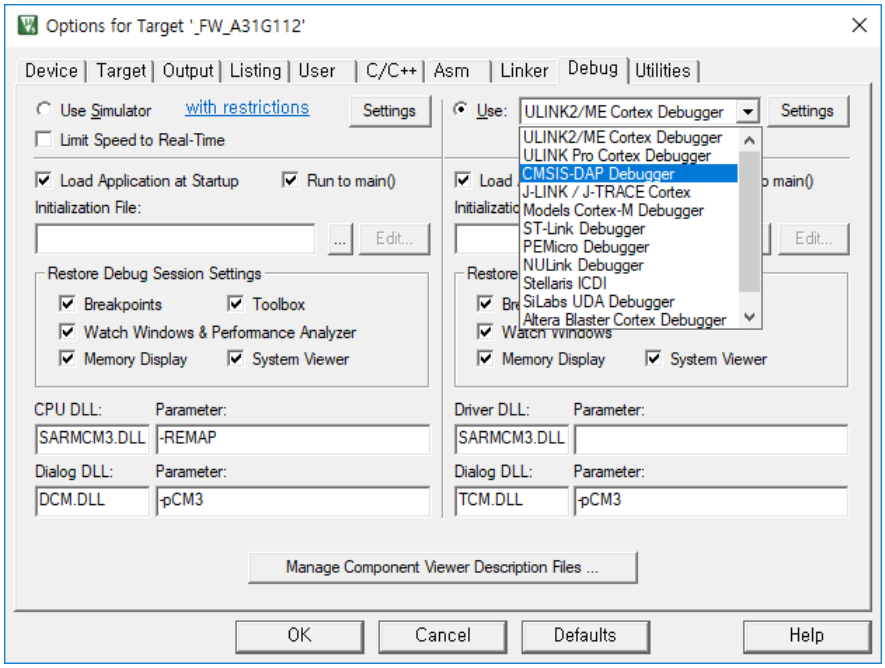
Device manager screenshot

If an A-Link adapter is connected, it will be enumerated as a “USB Input Device.”

3.2 KEIL compiler GUI settings

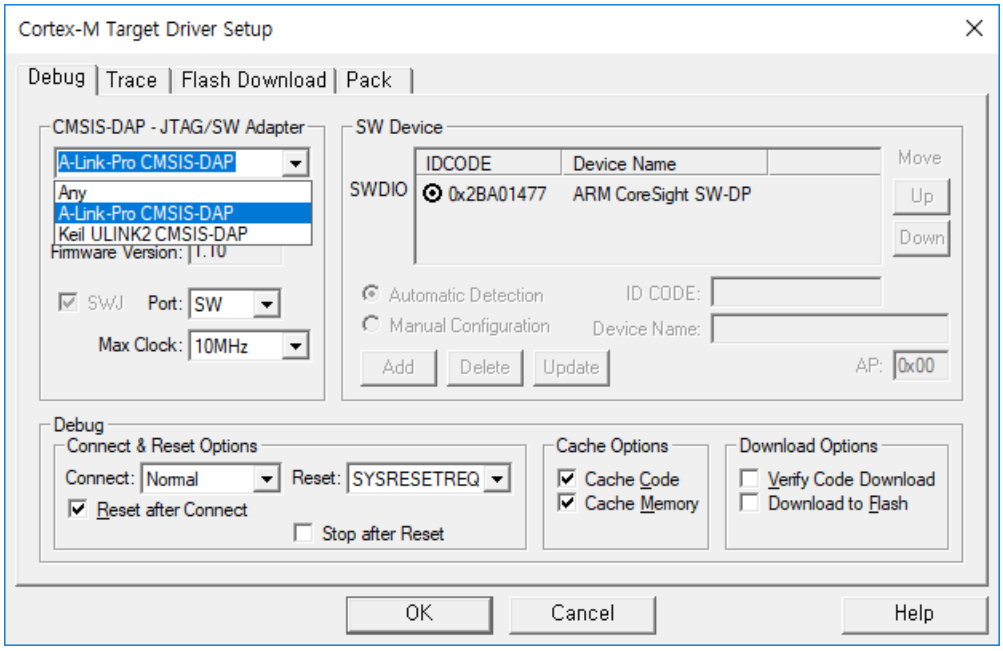
It is simple to set CMSIS-DAP (A-Link) to KEIL compiler IDE.

1. Connect the A-Link/A-Link Pro dongle to your PC.
2. Start the KEIL GUI.
3. Open your project.
4. Open the option dialog box and click on the **Debug** tab.
5. Select **CMSIS-DAP Debugger**.



6. Click **Settings**.

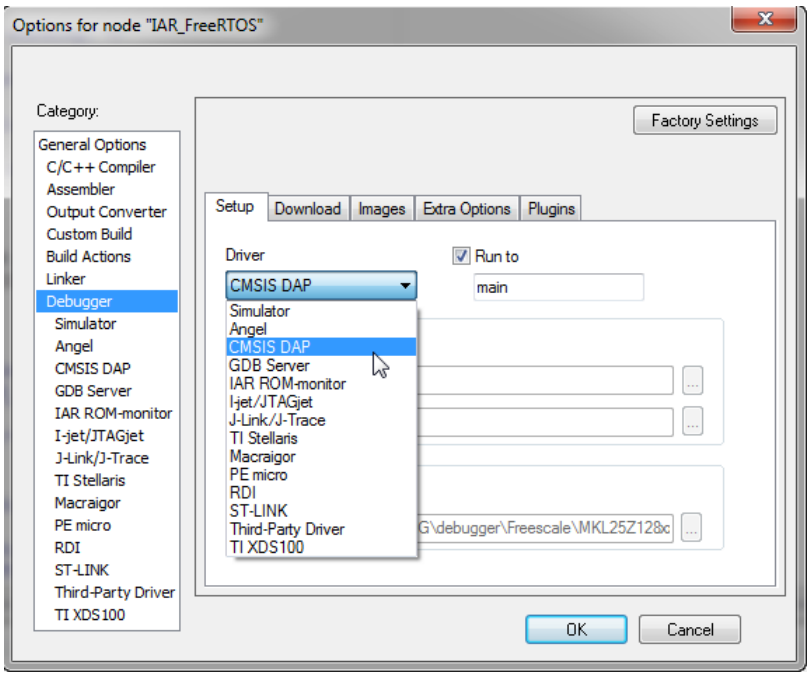
7. Select **A-Link** or **A-Link Pro CMSIS-DAP** according to your adaptor.



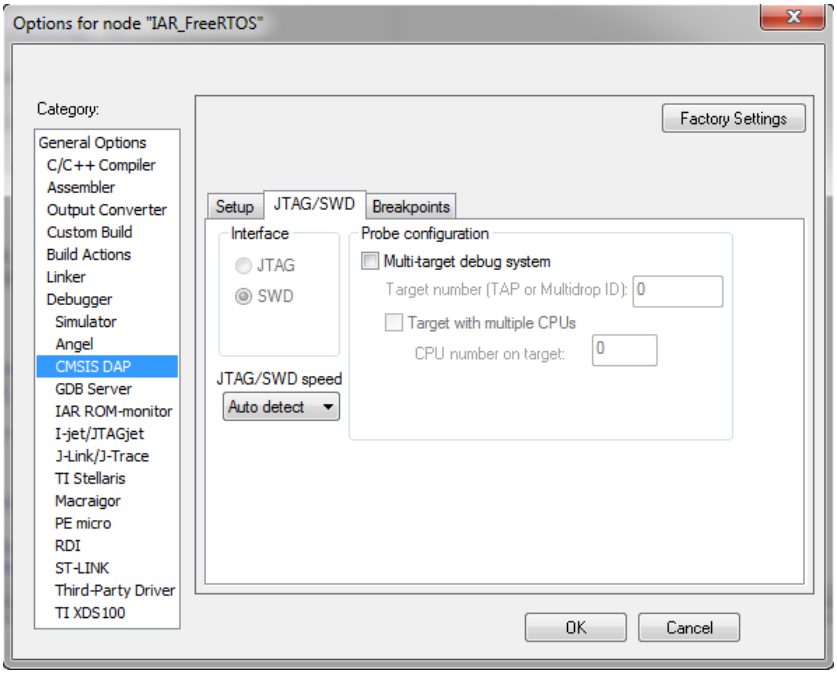
8. Now, you can debug your ABOV Cortex series device via A-Link/A-Link Pro CMSIS-DAP. It supports all debugging functions.

3.3 IAR compiler GUI settings

It is simple to set CMSIS-DAP (A-Link) to IAR compiler IDE.



CMSIS-DAP selection



SWD interface

3.4 Eclipse GUI settings

It is simple to set CMSIS-DAP (A-Link) to Eclipse IDE.