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FM4-U120-9B560 Quick Start Guide

Doc. No. 002-05534 Rev. *A

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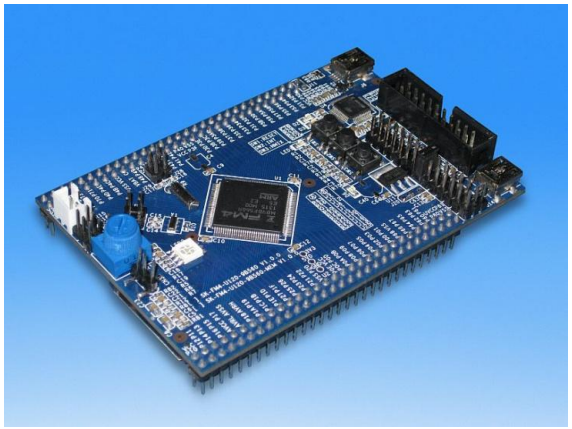
1. Introduction

1.1 FM4-U120-9B560 Starter Kit

FM4-U120-9B560 Starter Kit provides a low-cost solution to quickly start development on an ARM® Cortex®-M4 microcontroller. The FM4 MB9BF568R microcontroller comes pre-programmed with an interactive application to test all of the on-board features using a virtual communication port to send message prompts, input test parameters and output test results. This document will guide users on how to connect to the board and run the featured demonstration in less than 10 minutes.



- ARM® Cortex®-M4 core MCU
- CMSIS-DAP JTAG adapter
- User buttons
- RGB LED
- Potentiometer
- Flexible programming options
- SD Card slot
- External Flash and SRAM *
- USB Cable

(*FM4-U120-9B560–MEM)

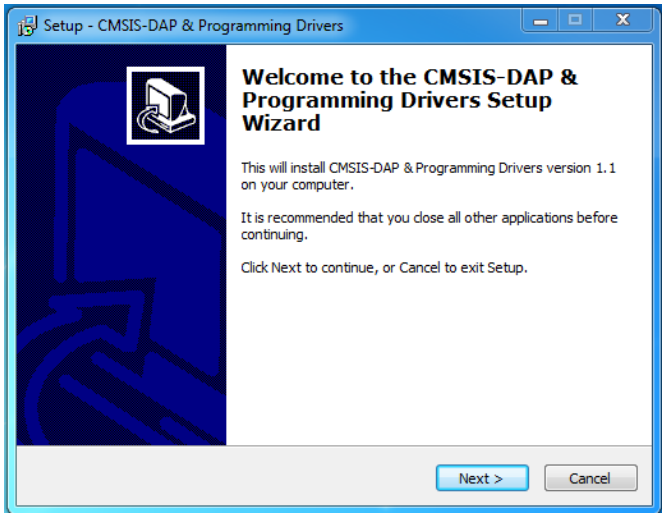
1.2 Setup Requirements

- PC with USB interface, Windows OS XP, or later
- FM4-U120-9B560 starter kit with USB cable (A/mini B)
- Download Complete Driver, Documentation, Software, & Tools Package http://www.cypress.com/documentation/development-kitsboards/fm4-u120-9b560-arm-cortex-m4-mcu-starter-kit-usb-and-cmsis-dap.

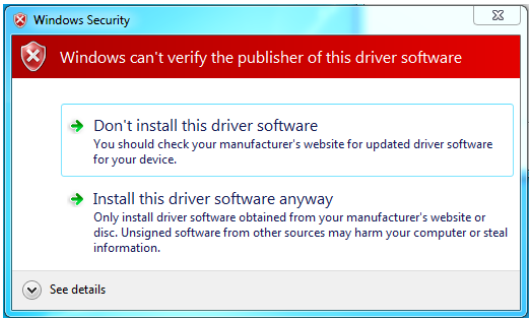
2. Windows USB Driver Installation

Windows USB drivers that are specific to the FM4-U120-9B560 starter kit need to be installed to run the virtual communication port. Follow the below instructions to install the Windows USB drivers.

1. In the downloaded FM4-U120-9B560_CDvnn* (*version number) folder browse to /drivers/driverinstaller.exe and run the application. Click the next prompt.



2. During the installation a warning may appear that the publisher cannot be verified depending on Windows security settings. Select, 'install this driver software anyway.' Two drivers are being installed, cmsis-dap and usbdirect. The Windows security window will appear twice, and 'Install this driver software anyway' will need to be selected each time.

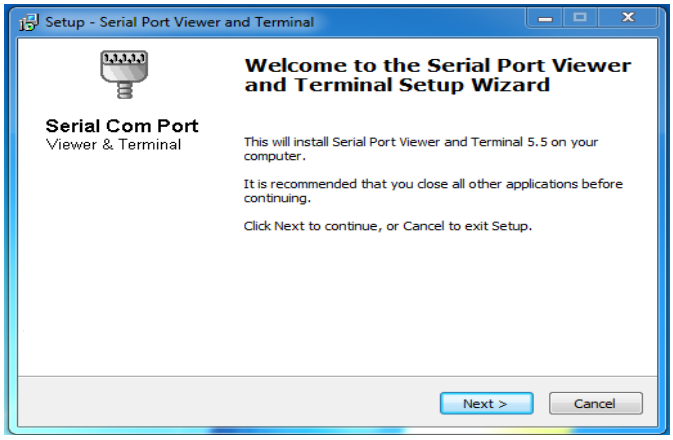


3. When installation is complete, click the finish button when prompted.

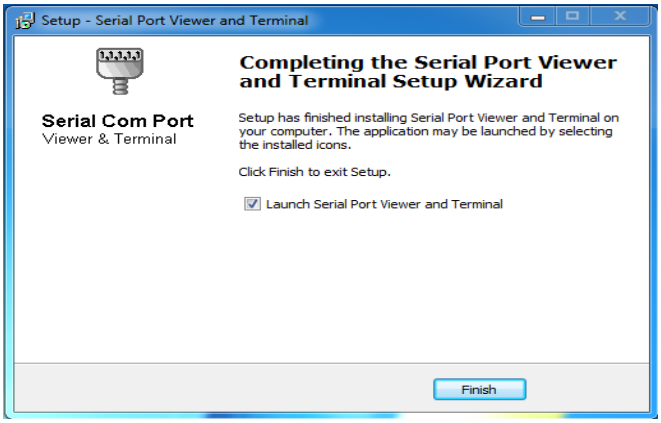
3. Install the Virtual Communication Port

The FM4-U120-9B560_CDvnn* download includes a serial communication terminal, Cypress Serial Port Viewer and Terminal, for the communication interface. Follow the instructions below to install.

1. Open the FM4-U120-9B560_CDvnn folder and browse to /tools/serialportviewer/setup.exe and run the application. Click the next button.



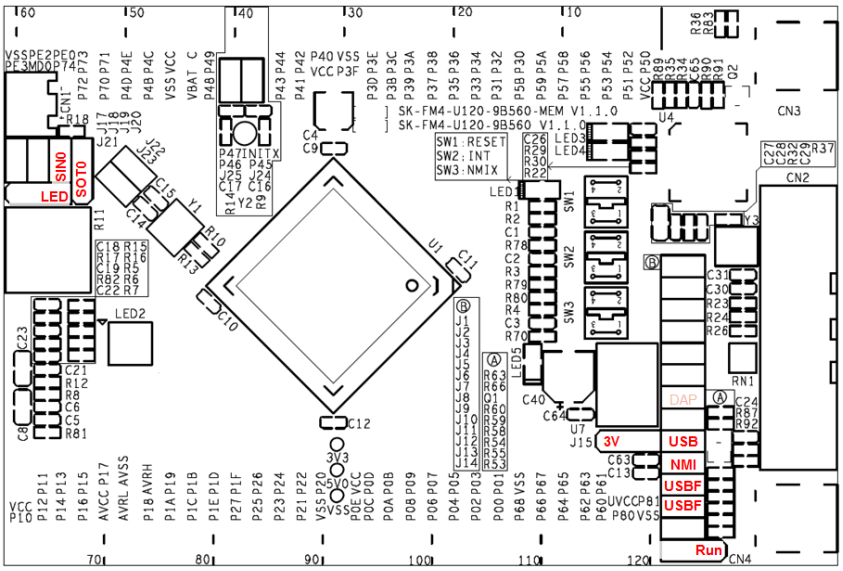
2. Review the license agreement, click I accept the agreement, and the next button.
3. Select a destination for the application or leave the default location, and click next.
4. Select a destination for the application shortcut or leave it in default location, and click next.
5. Select additional icon options and click next.
6. Select install to start the installation.
7. Check the box next to Launch Serial Port Viewer and Terminal and click finished.



4. Powering FM4-U120-9B560 Starter Kit

There are four options for powering the FM4-U120-9B560 starter kit. This document will only use two of those options, USB connection at either CN3 or CN4. Connect the USB cable to CN4 to power the board. The green power LED5 will illuminate. If it does not, ensure that jumper J9 is in closed position as shown in figure 1.0 for default jumper settings.

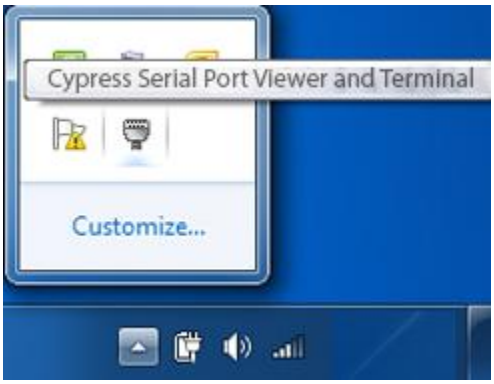
Figure 4-1. Default Jumper Settings



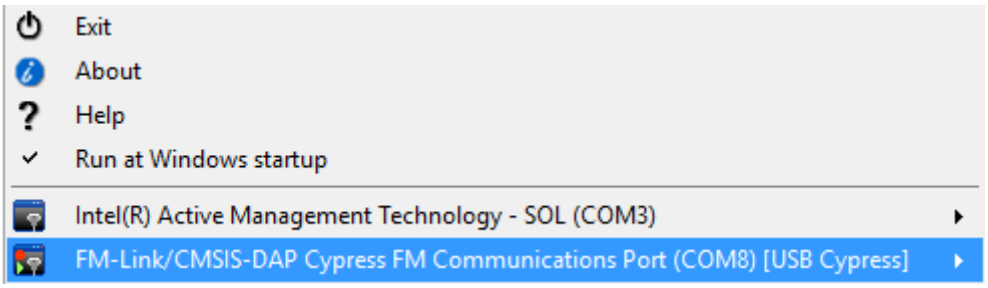
5. Run PCB Board Test Demonstration

The pre-programmed demonstration tests the on-board features for proper functionality. The application will already be running in the MB9BF568R microcontroller when the FM4-U120-9B560 starter kit is powered on. Follow the below instructions to connect the virtual communication port created by test application to the Cypress Serial Port Viewer and Terminal.

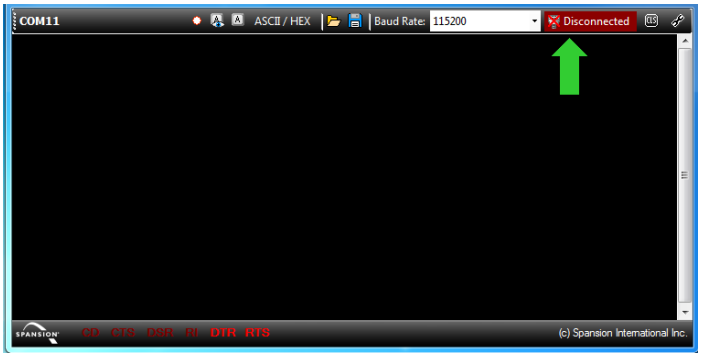
1. Open the Cypress Serial Port Viewer and Terminal by selecting the icon in the task menu or desktop short cut.



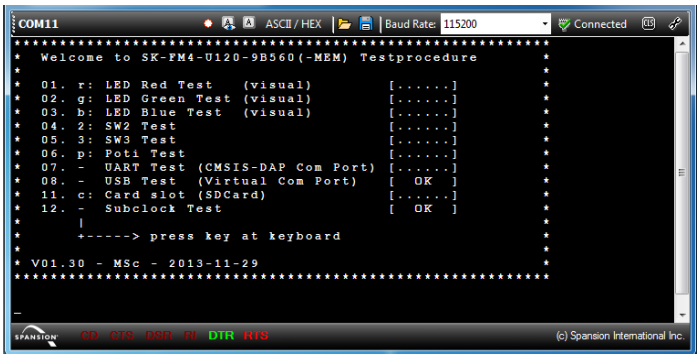
2. Choose the Cypress Virtual Communication Port.



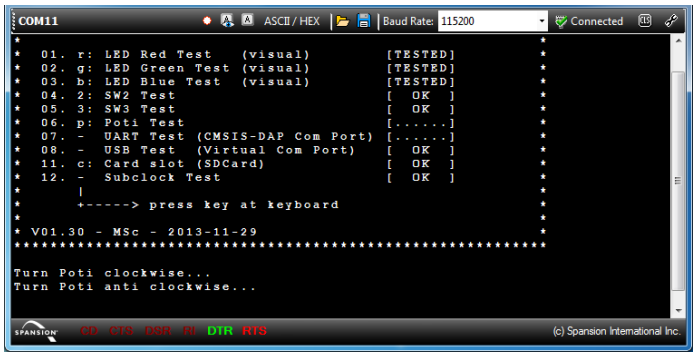
3. Set the baud rate to 115200 in the drop down menu and click disconnected above the green arrow to connect.



4. Once the terminal is connected, press the space bar on PC keyboard and the welcome message will display. The test application will automatically run the subclock test and report the results. The space bar is used as the input for the USB test.



5. To run each of the tests enter the letter next to the test description and follow the prompts. For example: p <enter> will test the potentiometer (R11). The application will prompt the user for a sequence of rotations of the potentiometer, and report the test result.



6. To run the UART test (CMSIS-DAP Com Port) the USB cable needs to be connected at CN3. Open jumper J9 and close jumper J7. Repeat steps 1 through 4 to connect the virtual communication port created by CMSIS-DAP firmware to the Cypress Serial Port Viewer and Terminal.
7. Once the terminal is connected, press the space bar on PC keyboard and the welcome message will display. The space bar is used as the input for the UART test.
8. If any issues or failures are encountered, ensure all jumpers are in default position as listed in Figure 4-1.

6. Additional Resources

The MB9BF568R MCU with ARM® Cortex®-M4 core is part of Cypress's FM4 Family of microcontrollers. The FM4-U120-9B560_CDvnn download folder includes additional resources for users to easily and quickly develop their own applications on Cypress's FM4 Family of microcontrollers:

- User Guide FM4-U120-9B560 with flash programming and IDE details
- Subfolder .\documentation
  - ☐ Data Sheet and Peripheral Manuals for the MB9B560R series
- Subfolder .\drivers
  - ☐ Windows USB drivers to connect to Cypress starter kit
- Subfolder .\PDFXChange
  - ☐ Free PDF viewer that allows opening external links like are embedded in the Quick Start Guide and the User Guide
- Subfolder .\sw-examples
  - ☐ Template project and some software project examples with header files
- Subfolder .\tools
  - ☐ cmsisdap_fw_update
    Latest firmware of the on-board JTAG debugger
  - ☐ PCWFM
    Flash MCU Programmer – Graphical interface to program flash through UART through on-chip ROM UART boot loader.
  - ☐ Serialportviewer
    Cypress Serial Port Viewer and Terminal - Serial communication terminal to be used for the UART communication interface
  - ☐ USBDIRECT
    Flash USB Direct Programmer – Graphical interface to program flash through USB through on-chip ROM USB boot loader.

Revision History

Document Revision History

Document Title: FM4-U120-9B560 Quick Start Guide Document Number: 002-05534				
Revision	**ECN**	**Origin of Change**	**Issue Date**	**Description of Change**
**	—	HOWE	01/01/2015	Initial release.
*A	5543971	HOWE	12/15/2016	Updated to Cypress format