

Flash Memory Shield Board & Daughter Board

1 INTRODUCTION

This describes how to use the Flash Memory Shield Board & Daughter Board from Winbond Electronics.

2 GENERAL DESCRIPTION

The Flash Memory Shield Board & Daughter Board is consist of following two kinds of board.

This kit is an Arduino-derived shield and daughter board that will interface with any Arduino-derived microcontroller host board with a standardized Arduino UNO R3 pinout and GR-PEACH pinout.

A) Shield Board

One Shield Board to connect the Mbed enabled MCU Board and the Daughter Board.



B) Daughter Board

Three Daughter Boards with following Flash Memories.

| Part Number | Density | Product Type | Operation Temperature |
|--------------|------------|---|-----------------------------|
| W25Q128JVEIQ | 128Mb | 3.3V Serial NOR Flash Memory | Industrial (-40°C to +85°C) |
| W25N01GVZEIG | 1Gb | 3.3V Serial NAND Flash Memory | Industrial (-40°C to +85°C) |
| W25M321AVEIT | 32Mb + 1Gb | SpiStack 3.3V Serial NOR + Serial NAND Flash Memory | Industrial (-40°C to +85°C) |



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3 HOW TO USE

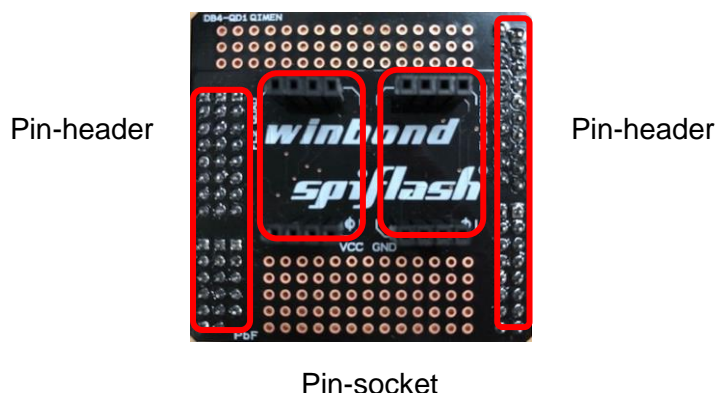
Besides the Quad SPI Evaluation Kit, you will need: ¹

- Computer with Internet access and USB port.
- USB cable with standard A to micro B connectors.
- Sample program source code.

3.1 Solder the terminal to each boards

3.1.1 Shield Board

Solder the pin-socket and pin-header as shown in the red frame in the following picture. The pin-socket should be mounted on top side of the board. The pin-header should be mounted bottom side of the board.



3.1.2 Daughter Board

Solder the pin-header as shown in the red frame in the following picture. All pin-header should be mounted bottom side of the board. When soldering is completed, attach the Shield Board and Daughter Board to the MCU Board.



¹ Please install "Arm Mbed Windows serial port driver" as necessary. <https://os.mbed.com/handbook/Windows-serial-configuration>

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3.2 Plug in the Quad SPI Evaluation Kit to your computer

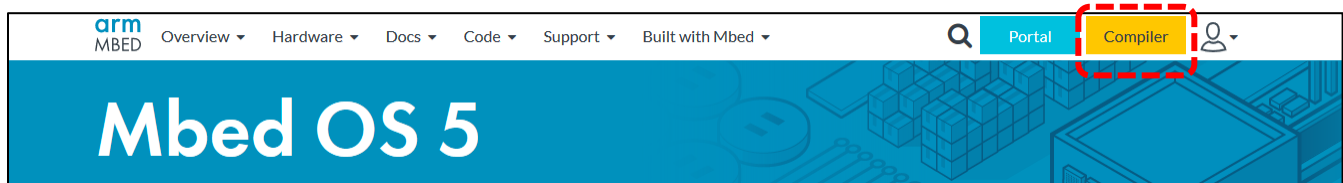
Plug the Flash Memory Shield Board and Daughter Board into your host board, then connect the host board to your computer using USB cable. The host board will enumerate as a composite USB device that includes a built in debugger, storage device and a virtual com port. A new drive will be created on your computer with a drive name as assigned by the host board.

3.3 Log in to ARM Mbed and create a Workspace

Log in to Mbed (If you don't have an mbed account, please create it.)

<https://os.mbed.com/>

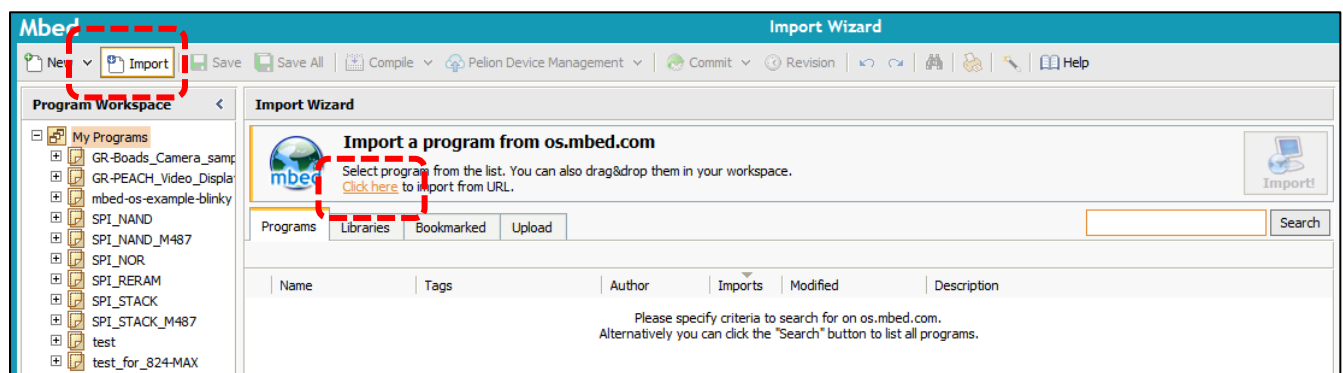
After log in, click on the Compiler button, then the mbed compiler will bring up the Workspace.



3.4 Import the sample program source code

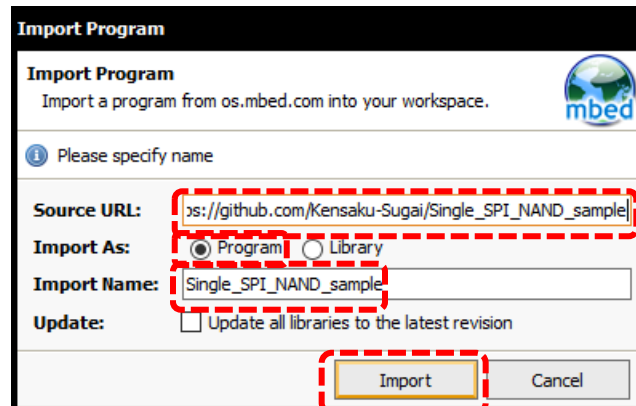
Select "Import" from the menu and select the "Upload" tab on the displayed screen.

Click the "Click here" link.

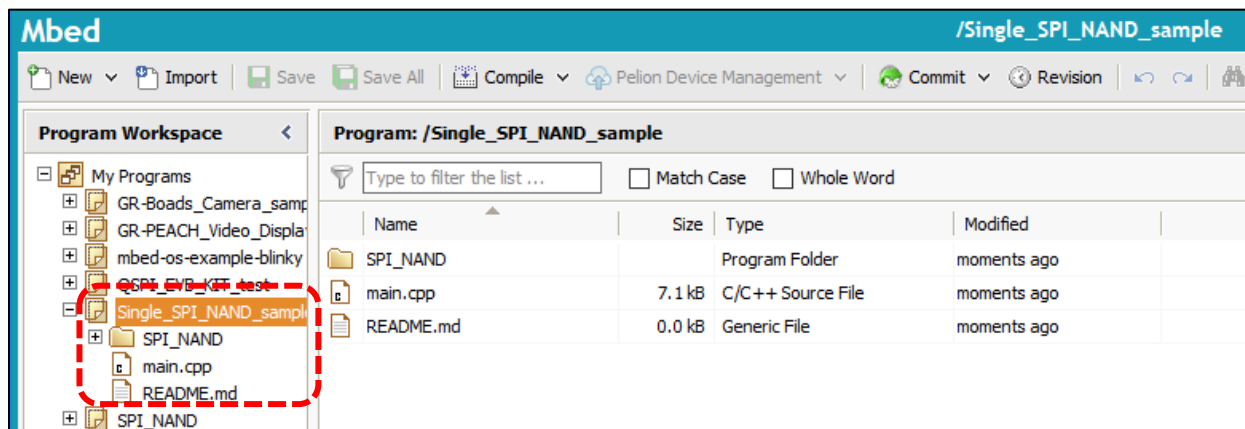


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In the Source URL, enter https://github.com/Kensaku-Sugai/Single_SPI_NAND_sample or https://github.com/Kensaku-Sugai/Single_SPI_NOR_sample or https://github.com/Kensaku-Sugai/Single_SPI_STACK_sample. Select Program, input any Import Name and press "Import" button.



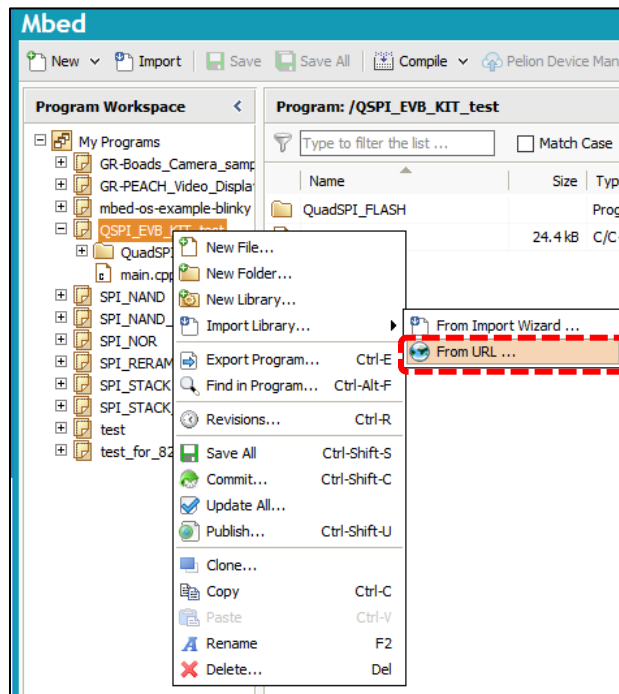
Confirm that the project was created.



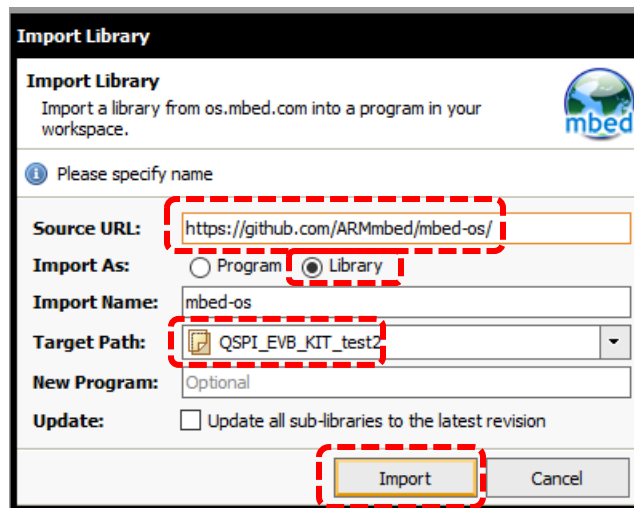
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3.5 Import the library

Select the project and choose "Import from URL" from the right-click menu.



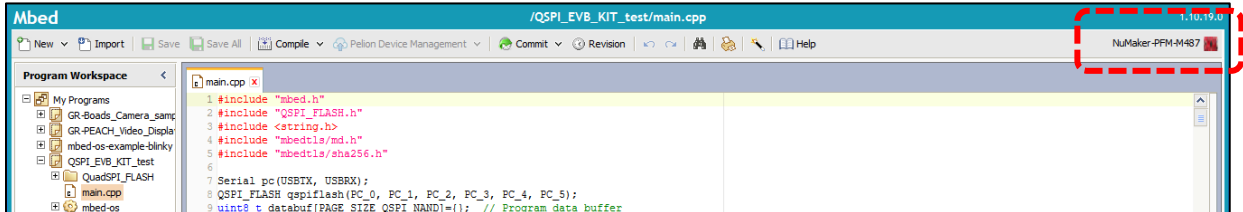
In the Source URL, enter <https://github.com/ARMmbed/mbed-os/>. Select Library, check Target Path and press "Import" button.



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3.6 Compile the sample program source code and load to the board

Change the Target board to your host board and execute "Compile".



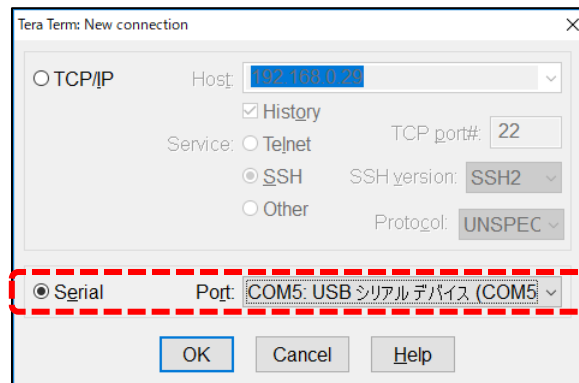
The program will be compiled and the binary (.bin) file created will automatically be downloaded to your computer's designated download location.

Drag and drop the binary file into the host board drive that you created. When the file is dropped into the folder, your host board will begin to program. When the program is fully loaded, the binary file will automatically delete from your host board drive.

3.7 Run sample program by terminal emulator

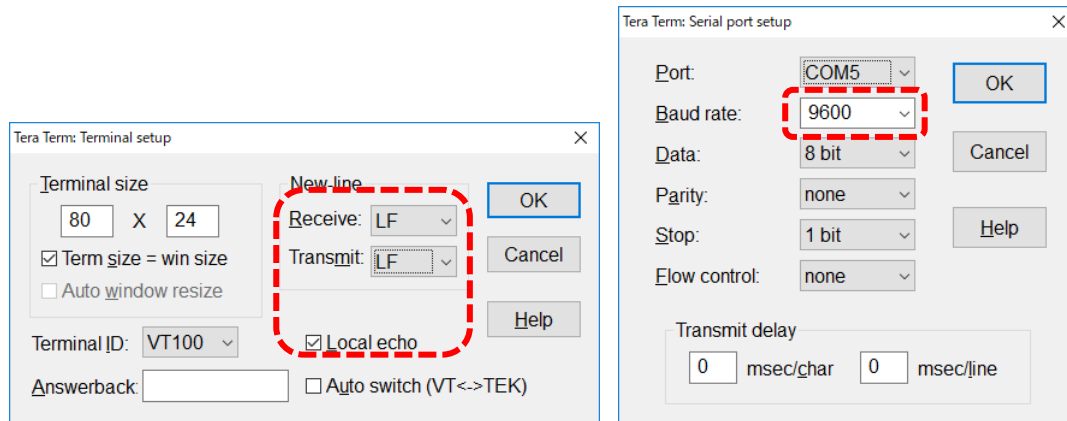
Use your favorite terminal emulator. For this example, we used the Tera Term.

Open Tera Term and select the serial port associated with your host board to create a new connection.

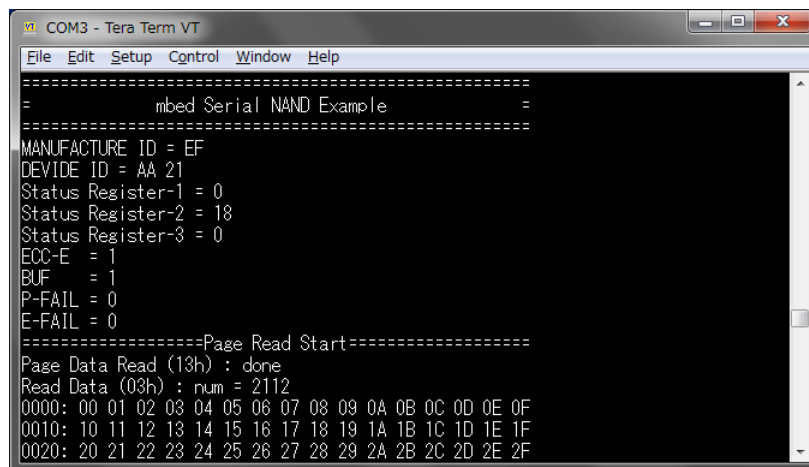


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Configure the serial port under Setup->Serial port with: 9600 baud, Setup->Terminal with: line feed code as LF.



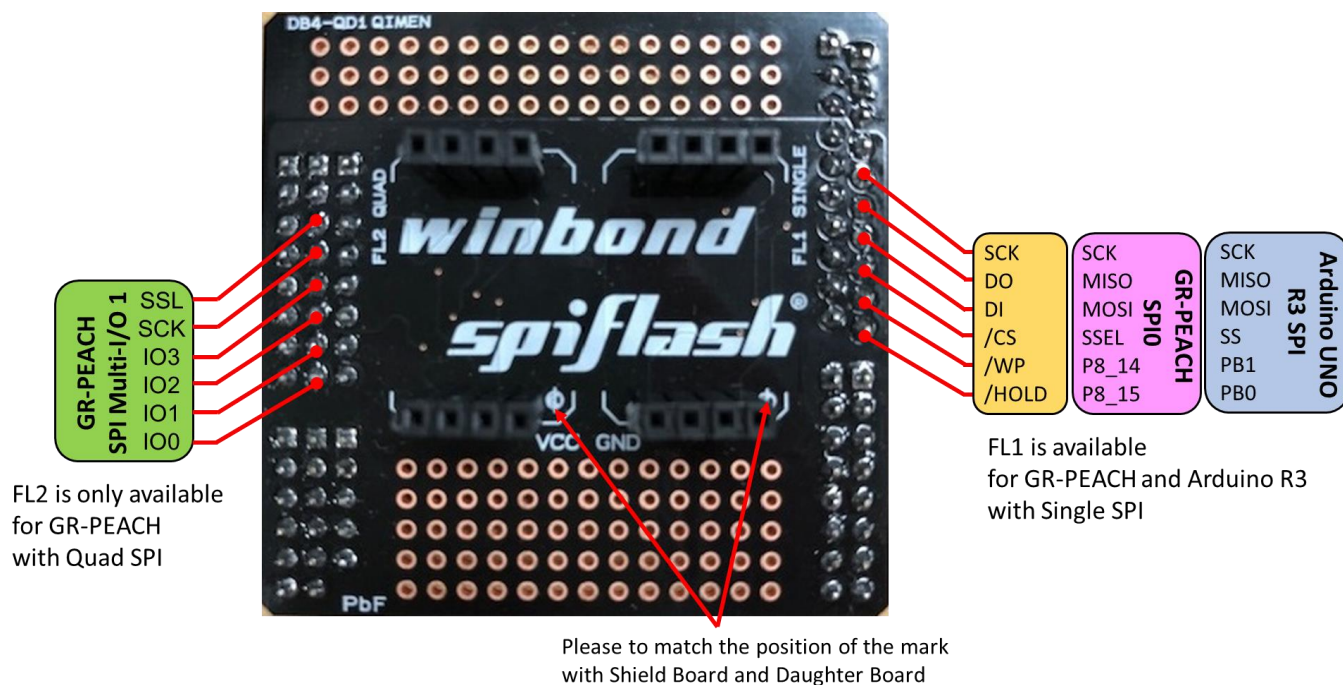
Press the Reset button on the host board to run the sample program.



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4 PCB LAYOUT

4.1 Shield Board



4.2 Daughter Board



5 REFERENCE

1. 3.3V Serial NOR Flash Memory W25Q128JVEIQ Datasheet
<https://www.winbond.com/resource-files/w25q128jv%20revf%2003272018%20plus.pdf>
2. 3.3V Serial NAND Flash Memory W25N01GVZEIG Datasheet
<https://www.winbond.com/resource-files/w25n01gv%20revg%20032116.pdf>
3. SpiStack 3.3V Serial NOR + Serial NAND Flash Memory W25M321AVEIT Datasheet
https://www.winbond.com/resource-files/w25m321av_combo_reva%20091317.pdf
4. Arm Mbed Windows serial port driver
<https://os.mbed.com/handbook/Windows-serial-configuration>
<https://os.mbed.com/docs/latest/tutorials/windows-serial-driver.html>

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Revision History

| Version | Date | Page | Description |
|---------|------------|------|-------------|
| 1.0 | 11/11/2018 | NA | New Create |

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