MM5120 EVK

Evaluation Kit Instructions

APN-0005

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Introduction to the MM5120 EVK

This document describes how to setup and use the MM5120 SP4T Switch Evaluation Kit (EVK). The EVK is intended for evaluation of MM5120 RF performance such as insertion loss, return loss and isolation over frequency.

The EVK is shipped with the following material:

- MM5120 RF board and USB driver board, packaged in protective ESD bag.
- Mini-USB cable for controlling the board from a Windows based GUI program.
- Windows compatible GUI Control Software distributed on USB memory stick.
- Printed Documentation including MM5120 Datasheet and Quick Start Guide (this document).

EVK Setup Procedure

1. Execute the Windows 64 bit installer (file name is mm_evk_sw_x.x-xx-x86_64_setup.exe where x.x-xx is version number) on the USB memory stick. This will transfer all the necessary files to a Windows based computer with user option to select the destination folder path.

2. In an ESD protected environment, open the ESD bag and take out the MM5120 boards.

3. On the RF board, select SPI mode and 3.3V VDD_IO using jumpers on P1 and P2, respectively as shown below:

4. Connect the RF board to the control board as shown below. Do not connect the boards when the control board is powered.
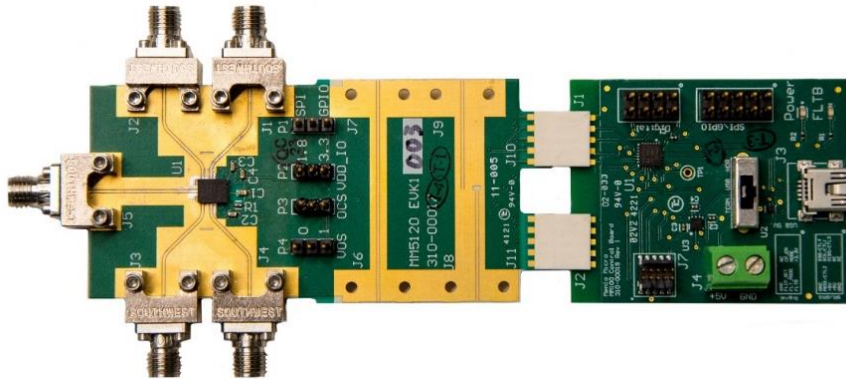

5. On the control board, switch the power selector switch to match where power will be supplied. Note: USB control can be used while supplying +5V to the screw terminal or header without risk of damage to the USB port.

    - If supplying +5V to the screw terminal (J4), select TERM (left).
    - If using +5V from the USB connector (J3), select USB (middle).
   - If supplying +5V to the SPI/GPIO header, select HDR (right).

6. If using an external voltage supply, supply +5V to the control board.

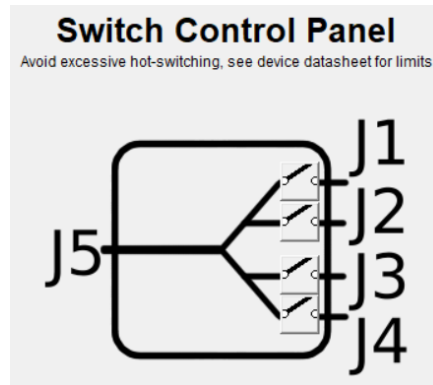7. Connect a computer to the control board using a USB mini cable.

8. Open the "Menlo Micro Evaluation Kit Software" and select "MM5120EVK1". Observe the control panel displaying switch status and controls.
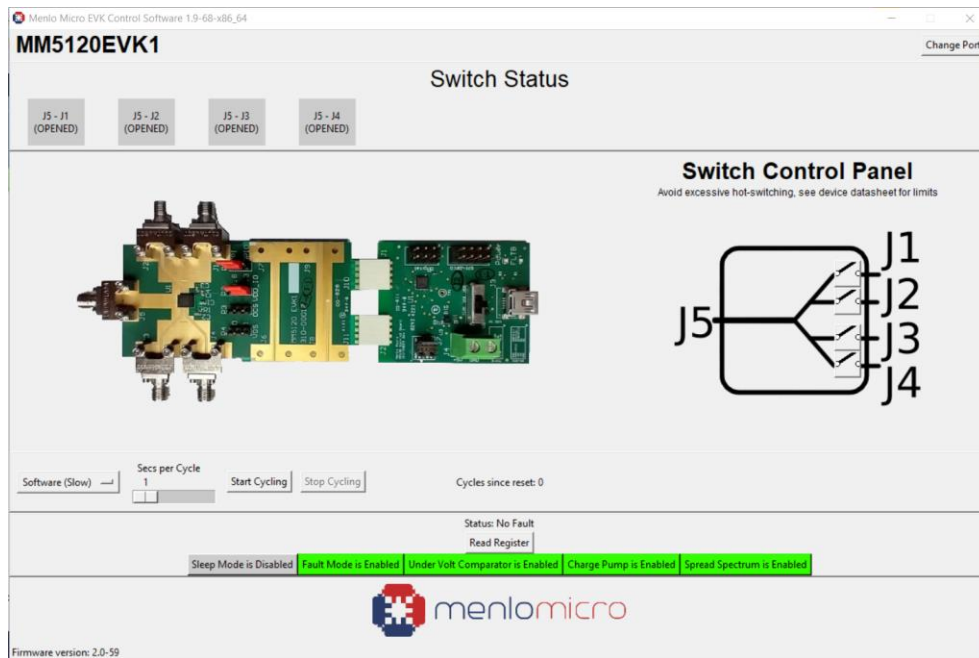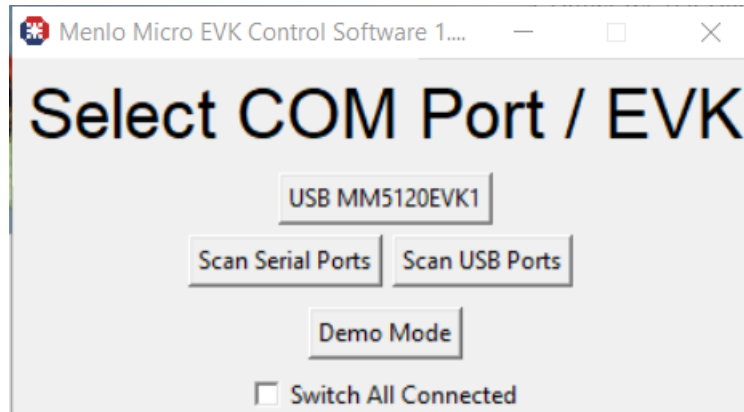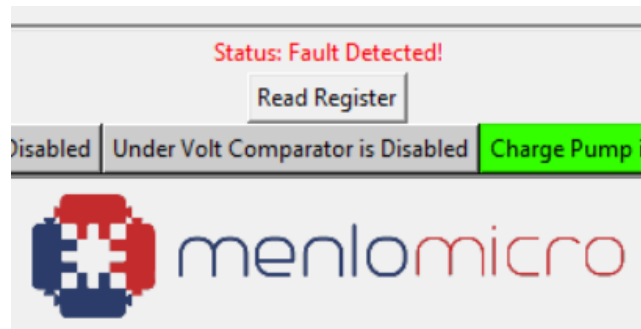

9. Enable the Charge Pump and disable Sleep Mode.
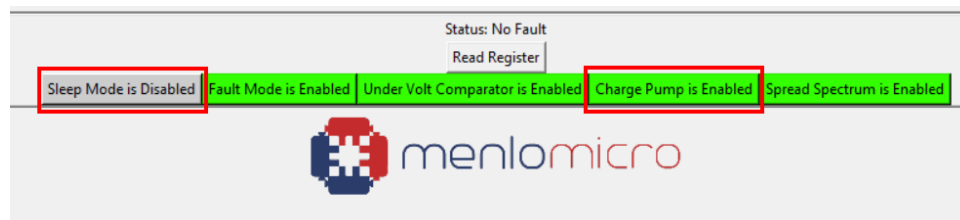
10. To close (enable) a switch, left-click the channel. Left-click again to open (disable) it.

11. To check for a fault, left-click "Read Registers" and as shown below. Changing the switches or other settings will clear a fault. See the datasheet for more details.

12. To power down the EVK, turn off the +5V source (if using external voltage supply) and disconnect the USB mini cable. Do not decouple the boards when the control board is powered.

Notes on Measurement Instrumentation

It is recommended to measure the evaluation board using a VNA.

During evaluation it is best practice to open or close the device with zero voltage across the terminals. It is possible to open or close switches with up to 0.5 V across the terminals without lifetime degradation. See datasheet for full hot switching specification details. Opening or closing the switch with a VNA sweep active in generally a safe practice.

Note: Even using a common digital multimeter to check the resistance can lead to device damage if the measurement is active during the actual state transition. Voltages between 3.0 V and 7.0 V from Multi-Meters (DMM) have been observed.