i.MX53 SABRE Board - Windows Embedded Compact 7 – Build EBoot

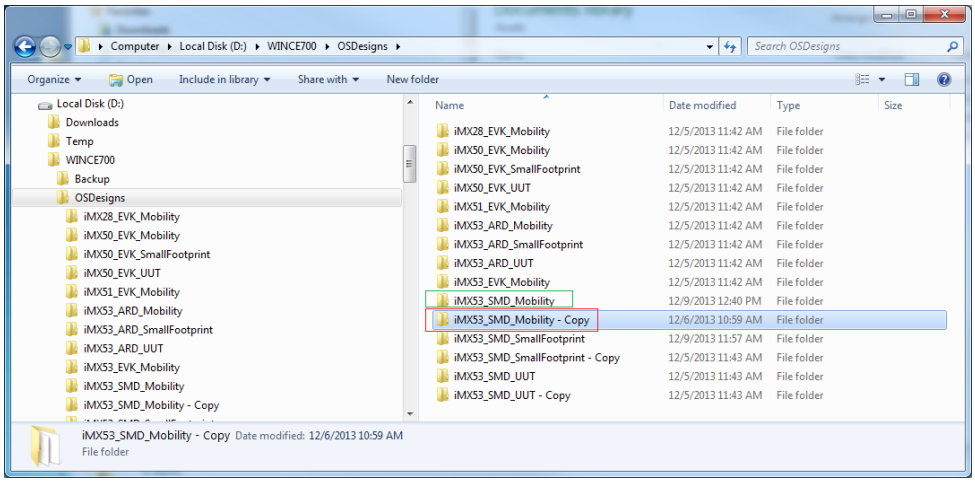
Summary:

This is a step-by-step how-to-guide that shows how to build a Windows Embedded Compact 7 Bootloader (eboot.nb0) image for the Freescale Semiconductor i.MX53 SABRE Board using a SD Card for booting.
The pre-requisite are the following:

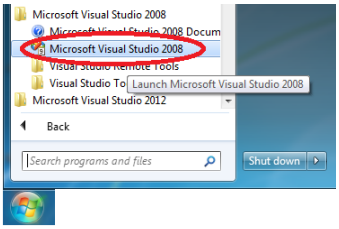
- Install Microsoft Visual Studio 2008
- Install Microsoft Visual Studio 2008: Service Pack 1
- Install Microsoft Visual Studio 2008: Windows Embedded Compact 7 (WEC7) ATL Update for Visual Studio 2008 SP1
- Install Microsoft Visual Studio 2008: Windows Embedded Compact 7 (WEC7) Evaluation Edition Add-In
- Install Microsoft Visual Studio 2008: Windows Embedded Compact 7 (WEC7) BSP for Freescale i.MX53 SABRE [*IMX53_WCE700_1105_BSP_SOURCE/**WCE700_11.05.03_ER.zip***]
- Install Microsoft Visual Studio 2008: Windows Embedded Compact 7 (WEC7) Patch & MM for Freescale i.MX53 SABRE [*IMX_WCE700_1105_TABLET_MMCODES/**WinCE700_MX53_SMD_11.05.03_ER_MM.zip***]
- Install Microsoft Visual Studio 2008: Windows Embedded Compact 7 (WEC7) BSP Patch Update for Freescale i.MX53 SABRE [*IMX53_WCE700_1105_BSP_PATCH/**WCE700_MX53_Patch_1112.zip***]

Steps To Perform:

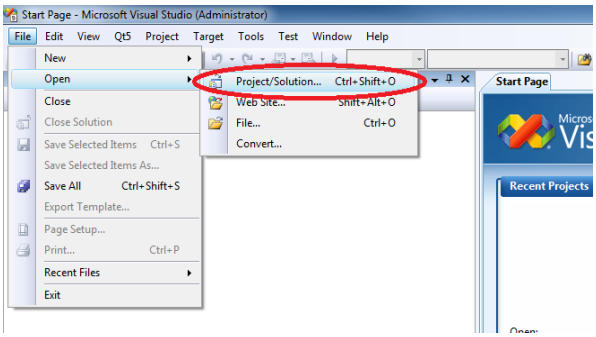
1) Build WEC7 EBOOT Image
   a. Make a copy of the “iMX53_SMD_Mobility” for backup purposes.



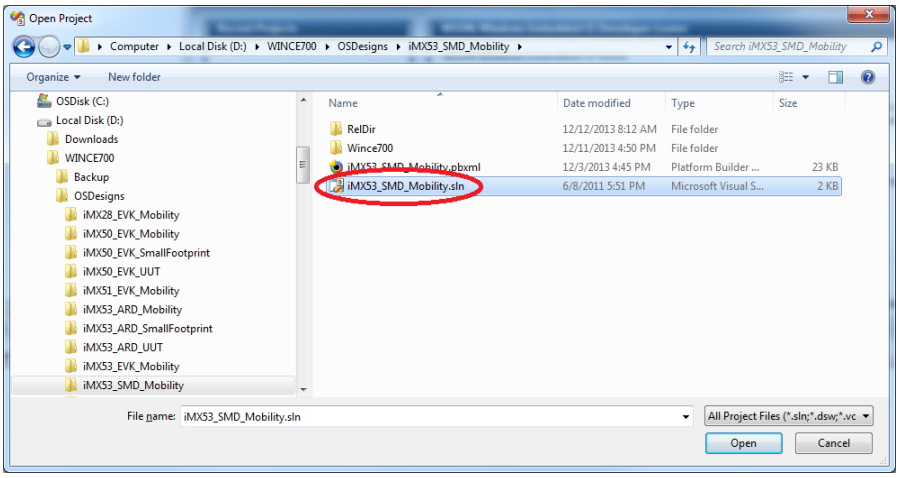
   b. Open Microsoft Visual Studio 2008 by selecting **START | All Programs | Microsoft Visual Studio 2008 | Microsoft Visual Studio 2008**.



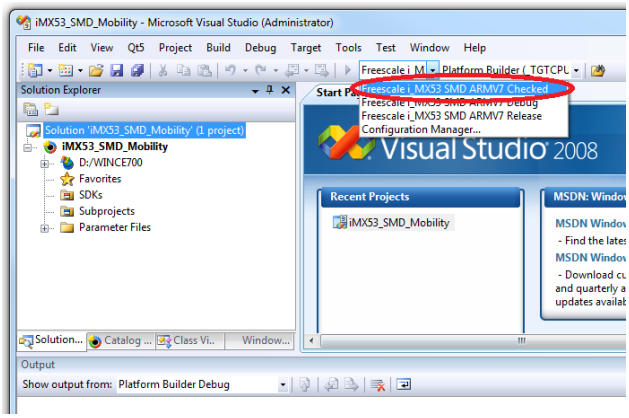
c. Open an existing project by selecting **File | Open | Project/Solution…** from the menu bar.



d. Open the 'iMX53_SMD_Mobility' project provided by Freescale by clicking on "iMX53_SMD_Mobility.sln".

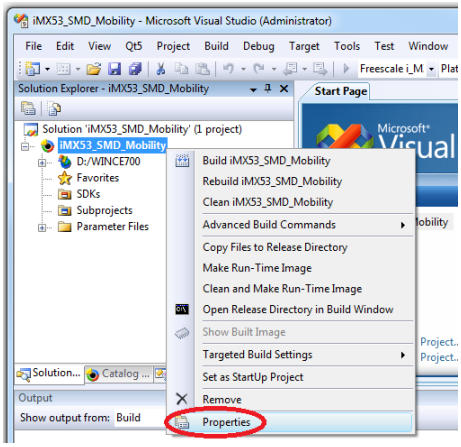


e. From the 'Standard' tool bar select "Freescale i_MX53 SMD ARMV7 Checked".

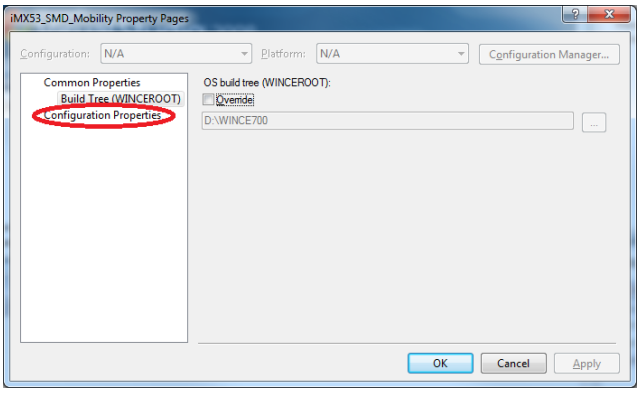


f. Verify that SD/MMC environment variable is set.

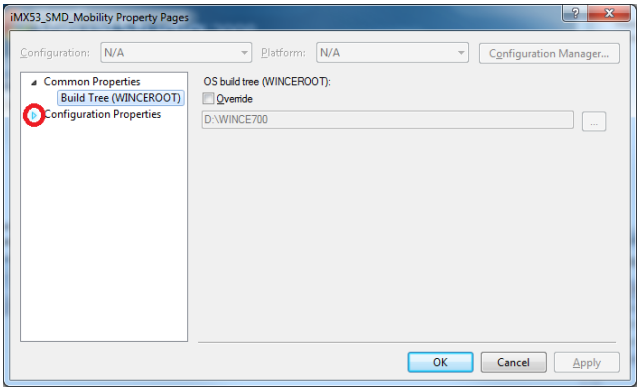
   i. Right-click on the "iMX53_SMD_Mobility" project and select "Properties".



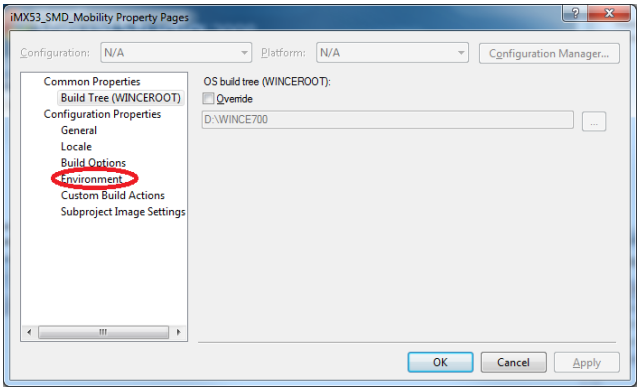
ii. Once the dialog is displayed hover the mouse over “Configuration Properties”.



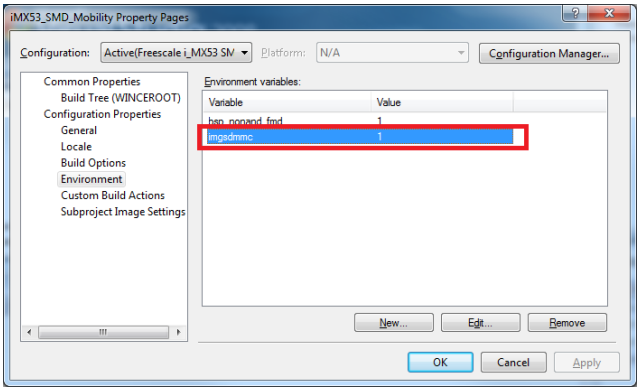
iii. An arrow will be show, click on this arrow to expand the configuration properties.



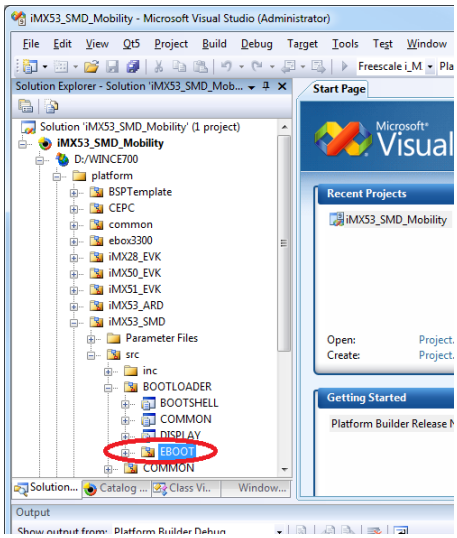
iv. Next, click on “Environment”.



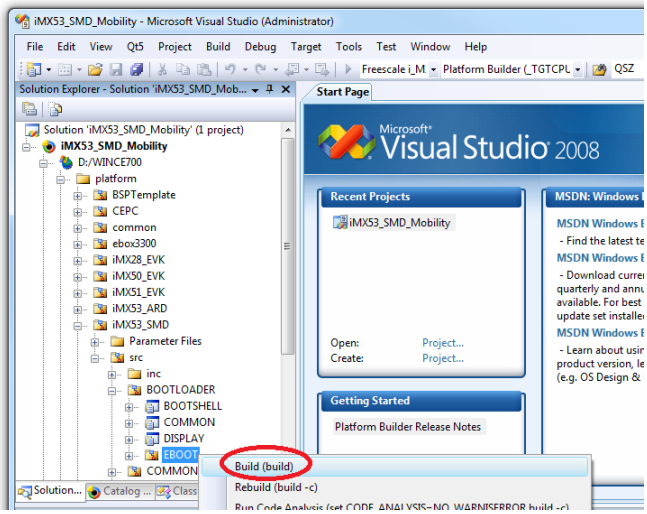
v. Verify that the “imgsdmmc” value is set to “1”.



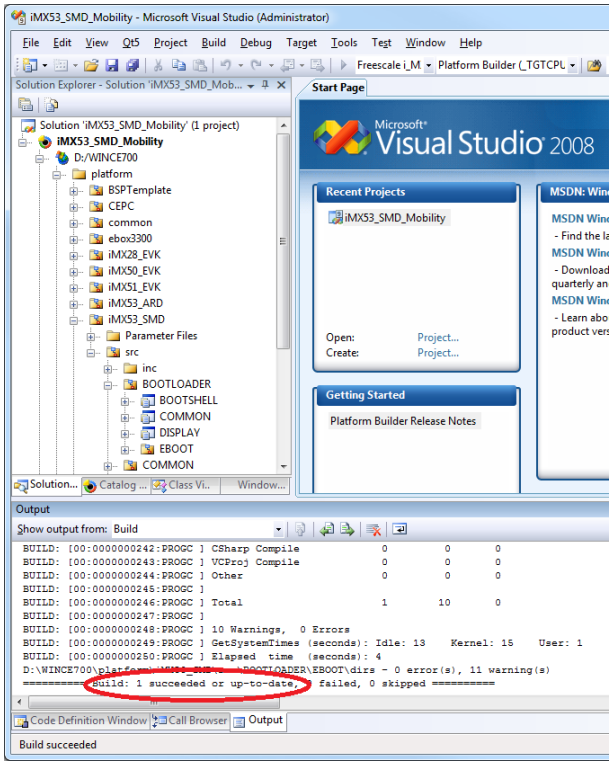
g. Expand the solution until EBOOT is shown.



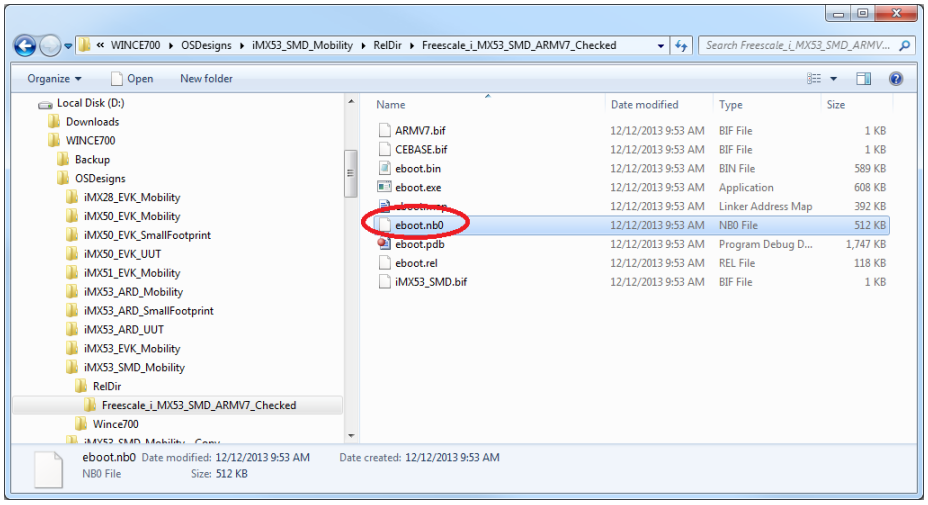
h. Right click on “EBOOT” and select “Build (build)”.



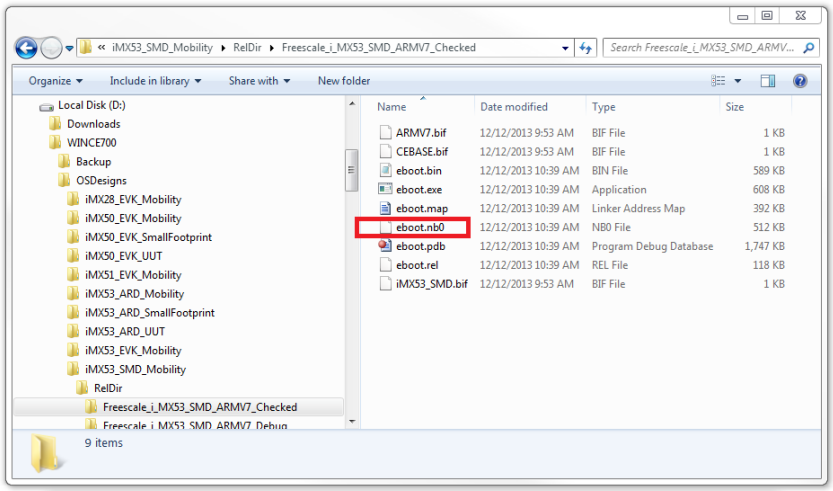
i. Wait until the build finishes successfully.



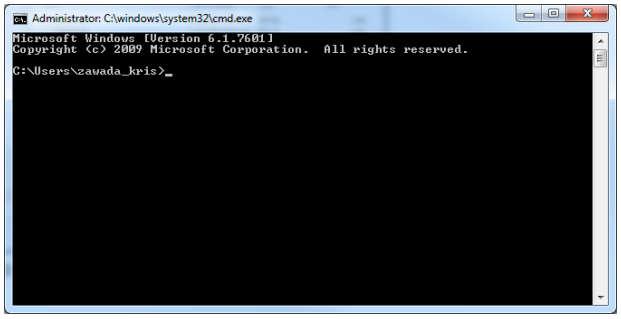
j. Locate the output from the build (*D:\WINCE700\OSDesigns\iMX53_SMD_Mobility\RelDir\Freescale_i_MX53_SMD_ARMV7_Chec ked\eboot.nb0*). The specific file necessary will be named “eboot.nb0”.



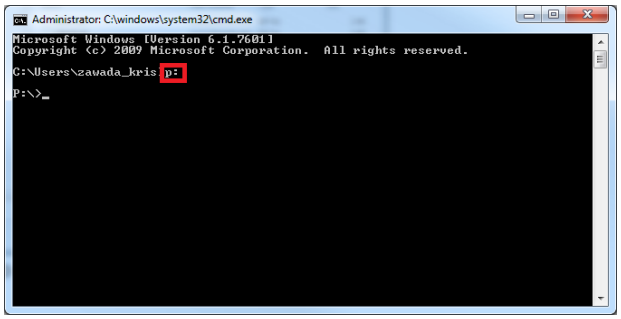
2) Program WEC7 EBOOT Image to SD Card
   a. Copy the “eboot.nb” file from the output directory into a temporary directory used for programming.
      i. **Output:** D:\WINCE700\OSDesigns\iMX53_SMD_Mobility\RelDir\Freescale_i_MX53_SMD_ARMV7_Checked
      ii. **Temp:** P:\SABRE_iMX53_WEC7_Test



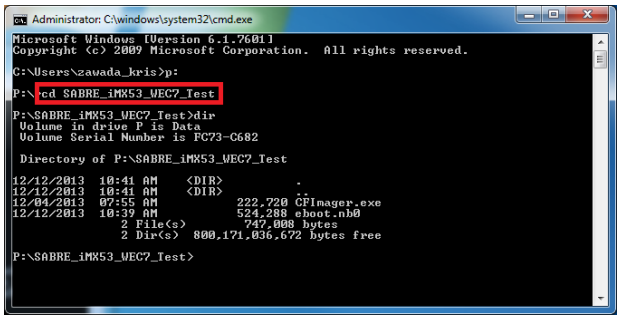
   b. Open the command prompt



c. Navigate to the drive that contains the temporary directory for programming (in this case it is: `p:`).

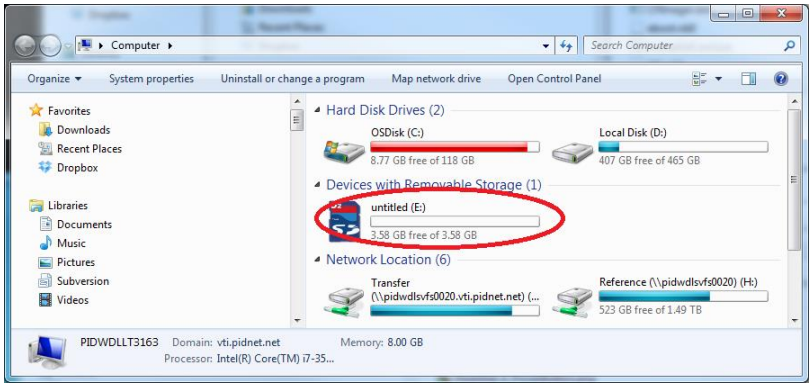


d. Navigate into the directory that contains the programmer and image (in this case it is: `cd SABRE_iMX53_WEC7_Test`).

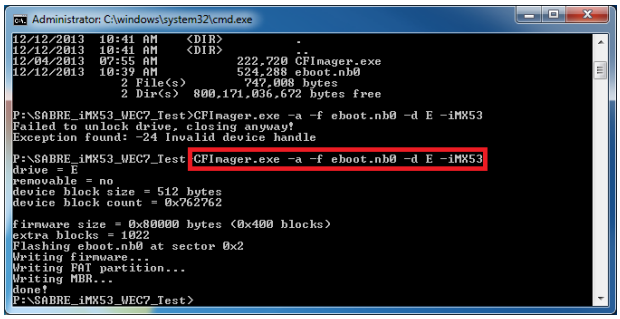


e. Plug in the SD Card into the computer.

f. Make note of the drive letter assigned to the SD Card.



g. Program the bootloader (eboot.nb0) by executing the command below (`CFImager -a -f eboot.nb0 -d E -iMX53`).

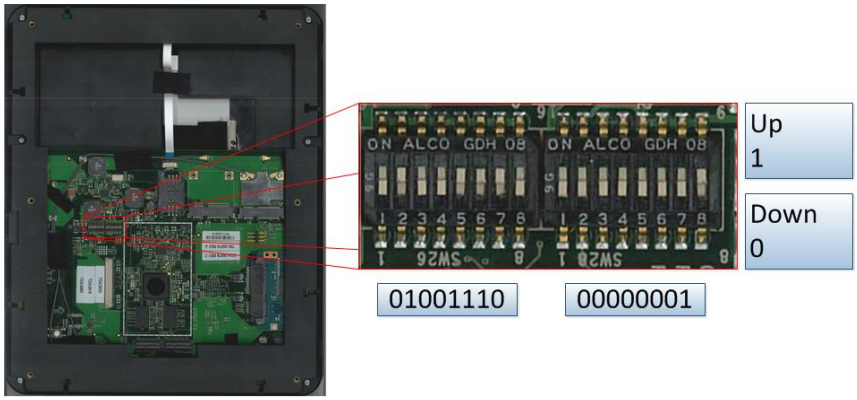


h. Remove the SD Card from the slot.

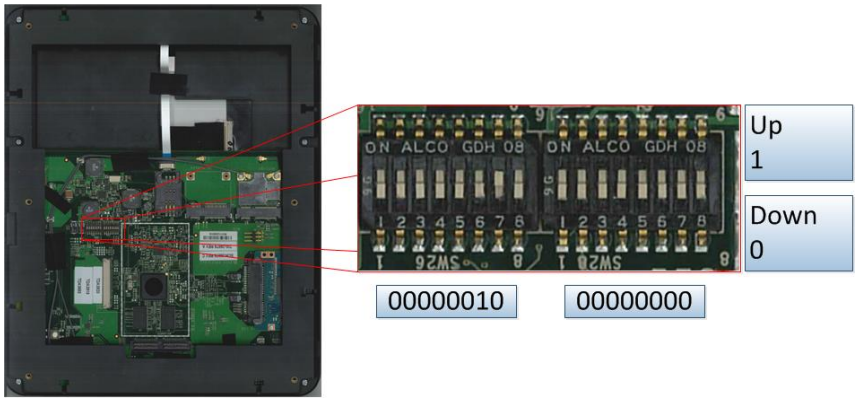
3) Change the BOOT on SABRE to use SD Card

a. Item 0

b. Find DIP switches on the back of the circuit board.



c. Change the DIP switches to use the settings below.



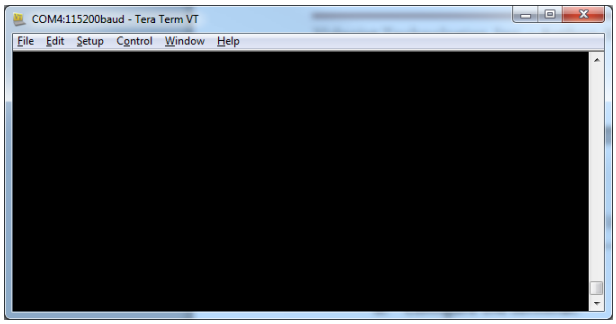
d. Place red cover on the back of the tablet and secure with screws.

4) Boot SABRE from SD Card

a. Plug in the debug board.

b. Plug in the SD Card.

c. Plug in the power cord.
d. Configure the terminal.
    i. **Port:** COM4
    ii. **Baud Rate:** 115200
    iii. **Data:** 8 bit
    iv. **Parity:** None
    v. **Stop:** 1 bit
    vi. **Flow control:** none



e. Press the power button.

f. Observe that nothing is happening at the terminal.

The terminal show no output at all.
The display is black.

5) Done!