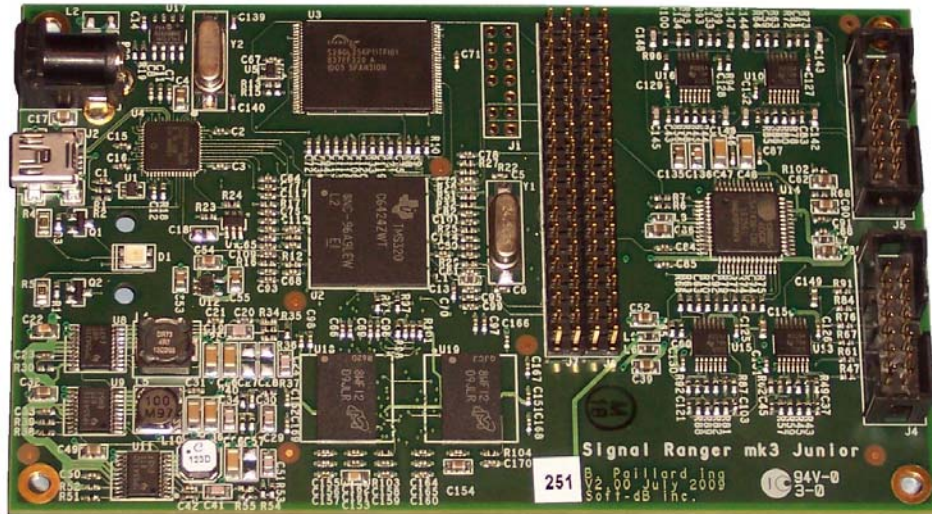


# Signal Ranger mk3

## Test Manual



by

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In association with



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## 1 Foreword

This document is addressed to the manufacturing technical personnel. The test procedure is the same as the one that is described in the user's manual. It is repeated here for simplicity. The user has access to the *SR3\_SelfTest* procedure and software. The user can run the *SR3\_SelfTest* application described here to test the board at any time. However the user does not have access to the configuration software, and normally should not have any use for it.

## 2 General Configuration and Test Sequence

This document describes the configuration and test sequence that should be performed on boards that have just been assembled, and have never been powered-up. To test an already configured board simply run the *SR3\_SelfTest* application.

### 2.1 Complete Configuration and Test Sequence (just after assembly)

The configuration and the self-test use two separate software tools:

- **Set\_Personality:** Performs the initial configuration of the board, after which it behaves as a *SignalRanger\_mk3* board.
- **SR3\_SelfTest:** Tests the various hardware elements of the *SignalRanger\_mk3* board.

Complete configuration and test sequence:

- Power-up the board
- Run the *Set\_Personality* software to program the USB controller firmware into the USB controller EEPROM (Board-Configuration)
- Cycle the power supply
- Run the *SR3\_SelfTest* software to thoroughly test the board.

*Note: Only power the board using the provided power supply, or using a 5V/1A (+-5%) power supply. When using a custom power supply, make sure the positive side of the supply is in the center of the plug. Failure to use the proper power supply may damage the board.*

## 3 Installing the Test and Configuration Tools

*Note: Do not connect the SignalRanger\_mk3 board into the USB port of the PC until the software has been installed on the PC. The driver installation process, which occurs as soon as the board is connected to the PC requires that the driver files be present and accessible on the disk.*

### 3.1 Set\_Personality Installation

To install the configuration package follow the sequence below:

- Unzip the *Set\_Personality\_Installer\_V400* package.
- Run *Setup.exe*. This installs the application and associated files in *C:\Program Files\Set\_Personality*. After this installation all the applications and the documentation can be accessed using the *Start* menu, under the *Set\_Personality* index.
- Connect an un-configured board into the PC's USB port
- Power-up the board from the 5V adapter
- The Led should light-up a steady red. If the color changes the board has already been configured. Choose another board that has not yet been configured.

- After a few seconds the PC should detect the board and present a standard driver installation wizard.
- Make the proper selections to specify the location of the driver. When asked, navigate into and select the *Program Files\Set\_Personality\Drivers\* directory.
- Windows should install the driver.
- After this first installation the PC should always recognize and take control of the board automatically a few seconds after it is connected. In some circumstances – for instance when the board is connected into a different USB port on the PC – Windows may ask to install the driver again. Windows should be able to find the driver automatically, provided its location on the disk has not changed from the first installation.

After the installation the *Set\_Personality* application and its documentation are available in the *START* menu under the *Set\_Personality* index.

Please read the *Set\_Personality\_UsersManual.pdf* for instructions on using the application.

### 3.2 *SR3\_SelfTest* Installation

To install the *SR3\_SelfTest* package follow the sequence below:

- Unzip the *SR3\_Applications\_Installer.zip* package.
- Run *Setup.exe*. This installs the application and associated files in *C:\Program Files\SignalRanger\_mk3*. After this installation all the applications and the documentation can be accessed using the *Start* menu, under the *SignalRanger\_mk3* index.
- Connect a configured *SignalRanger\_mk3* board into the PC's USB port
- Power-up the board from the 5V adapter
- The Led should light-up red for 1/2s, to indicate that the board is properly powered, then orange to indicate that the DSP section is functional.
- Connect the *SignalRanger\_mk3* board into the USB port of the PC.
- After a few seconds the PC should detect the board and present a standard driver installation wizard.
- Make the proper selections to specify the location of the driver. When asked, navigate into and select the *C:\Program Files\SignalRanger\_mk3\Drivers\SRm3cd* directory.
- Windows should install the driver.
- After the driver is properly installed the LED turns green to indicate that the PC has taken control of the board.
- After this first installation the PC should always recognize and take control of the board automatically a few seconds after it is connected. In some circumstances – for instance when the board is connected into a different USB port on the PC – Windows may ask to install the driver again. Windows should be able to find the driver automatically, provided its location on the disk has not changed from the first installation.
- At any time after the board has been connected to the PC, and the PC has taken control of it the LED should be green. The LED must be green before attempting to run any PC application that communicates with the board.

## 4 Configuring the Board

To configure the board follow the instructions in the *START* menu, under *Set\_Personality\Set\_Personality\_UsersManual.pdf*.

If in doubt about the name of the hex file to use, contact *Soft-dB*.

## 5 Testing the Board

At any point after the board has been powered-up and is connected to a PC (after the LED has turned green) the *SR3\_SelfTest* application can be run.

The *SR3\_SelfTest* application is found in the start menu under *Start\SignalRanger\_mk3\SR3\_Applications\SR3\_SelfTest*.

The user interface of the *SR3\_SelfTest* application is shown below:

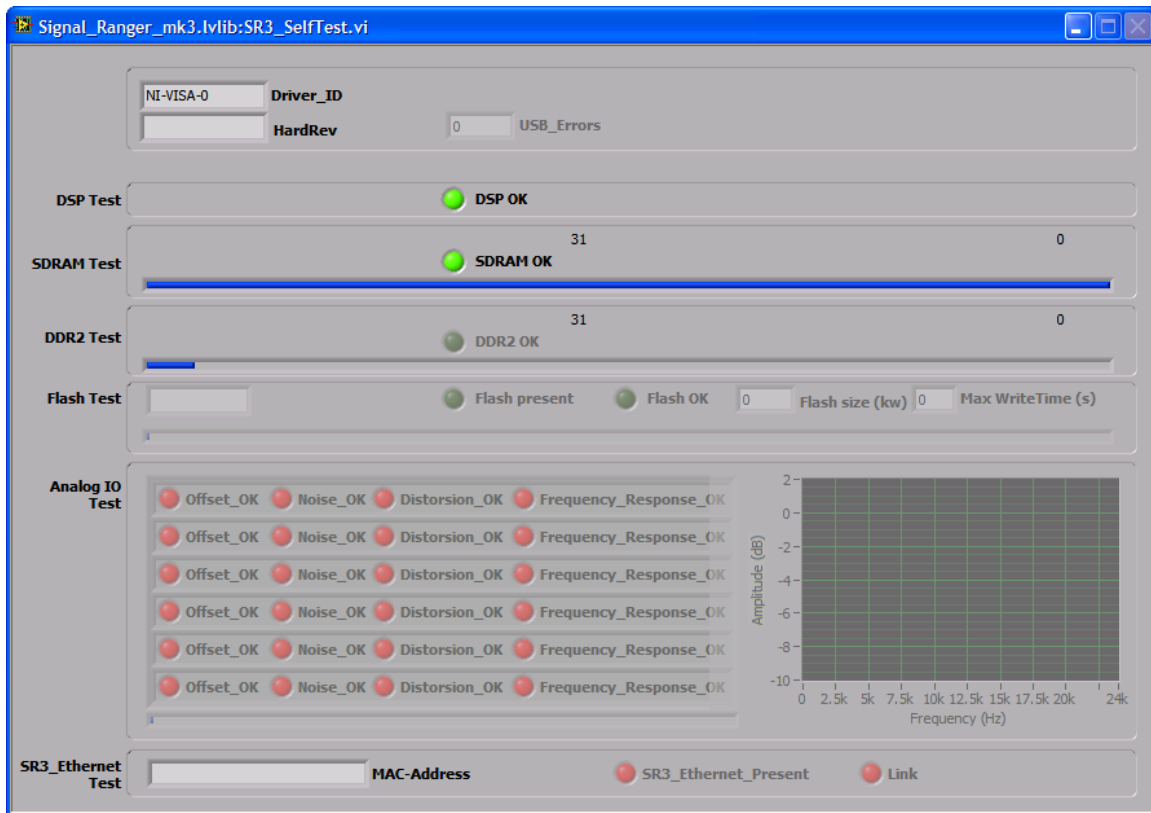


Figure 1 Front-panel of the *SR3\_SelfTest* application.

- Before running the application, connect the input-output test harness that connects every input to the corresponding output.
- To run the application, simply click on the white arrow that appears at the top-left of the window.
- The application initializes the board, then loads the kernel on the DSP, and then proceeds to test:
  - DSP
  - On-chip RAM
  - DDR2 RAM
  - Flash
  - Analog IOs
  - SR3\_Ethernet Add-on board presence and operation
- After each test completes the corresponding indicator lights-up. A green indicator indicates a pass. A red indicator indicates a fail.

*Note: Due to their very large size, the tests of the DDR2 RAM and the Flash take a very long time to complete. The Flash test in particular can take up to 30 minutes to complete.*

*Note: The Flash test erases the Flash contents. To avoid losing the Flash contents this test can be skipped.*