

Introduction

This document provides detailed instructions on the Silicon Sculptor 4 (SS4) conformance test.

Required Hardware

The following is the list of required hardware for the conformance test:

- SS4 to be tested
- SM48D or SM48DB socket module
- Voltmeter
- Oscilloscope

The following figure shows the location of pins 1 and 48 of the SM48D/SM48DB socket module. These pins are used to perform the actual voltage and waveform measurements.

Figure 1. SM48D/SM48DB Socket Module



Setup Instructions

To setup the unit, perform the following steps:

1. Place SM48D or SM48DB onto the SS4 programmer as shown in the following figure.

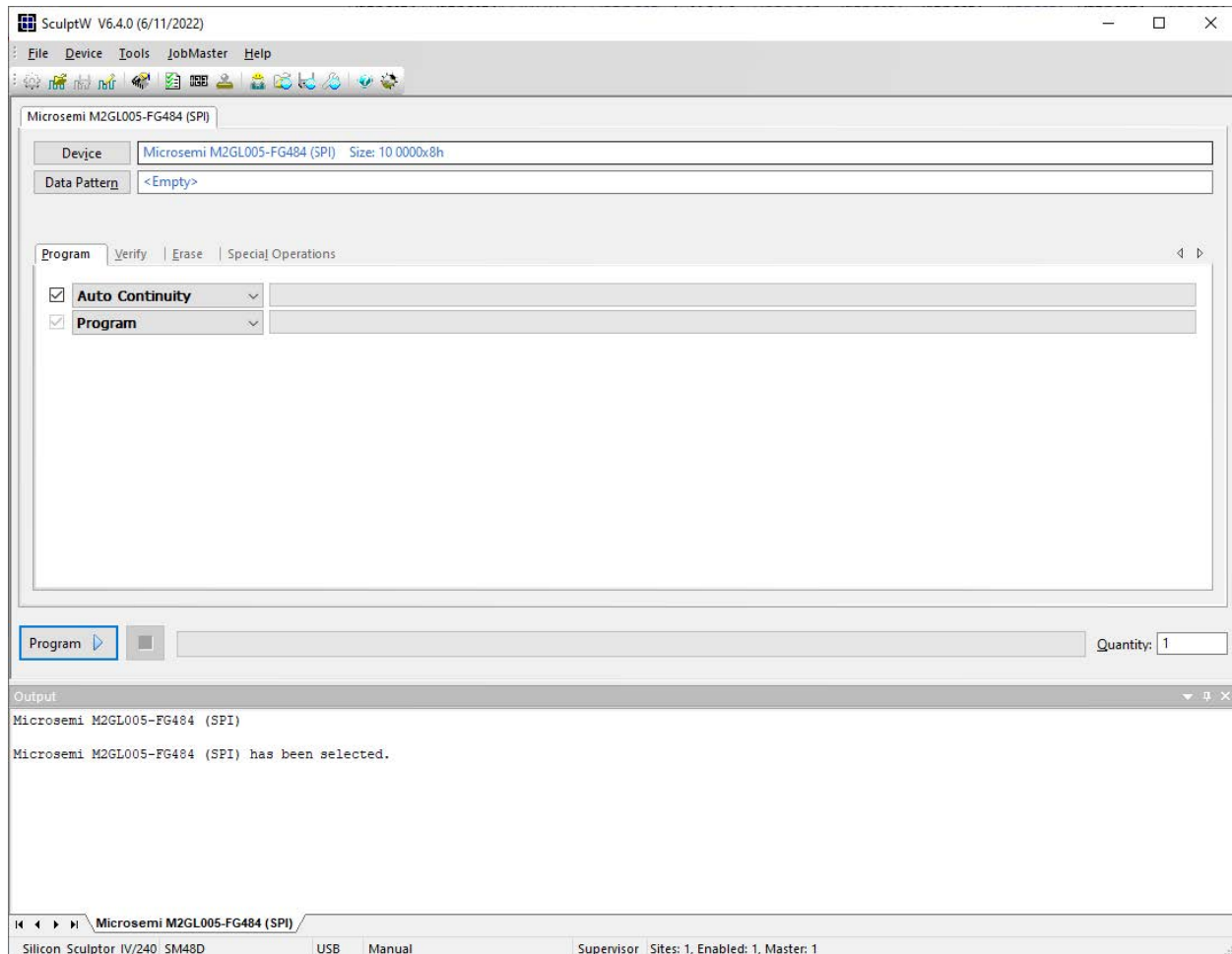
Figure 2. SM48D/SM48DB Socket Module Placed on SS4 Programmer



2. Connect the SS4 programmer to the PC using a USB cable.
3. Connect the power supply to the programmer and power outlet.
Note: Ensure that the power for the programmer is still turned off.
4. Install the latest version of the SculptW software on your computer, if not installed.
5. Launch the SculptW software. The programmer must be powered after this step. Ensure that the green LED illuminates after powering up the system. If the programmer fails to turn on, then close the software, check the USB and power connections, and attempt to power up the programmer again.

The following figure shows SculptW software.

Figure 3. SculptW Software

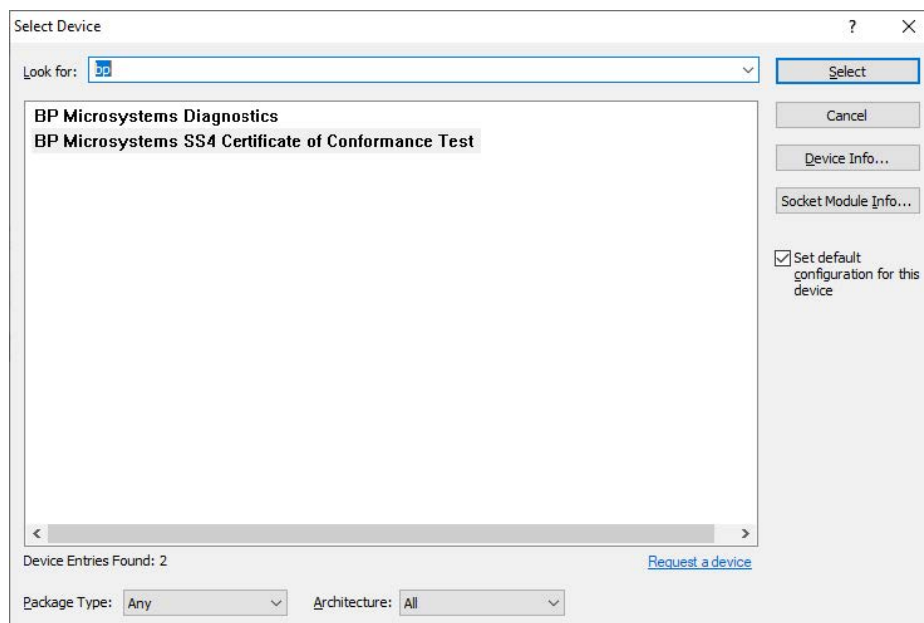


Test Instructions

To start the test, perform the following steps:

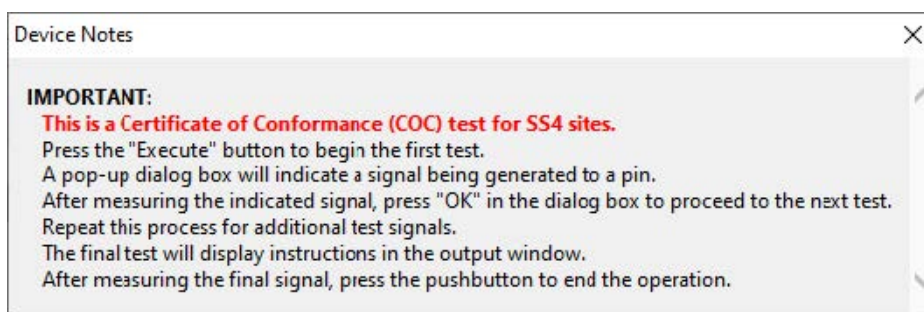
1. Click the **Device** menu, then in the **Look for** box, type **BP** as shown in the following figure.
2. Click **BP Microsystems SS4 Certificate of Conformance Test**, and then click **Select**.

Figure 4. Select Device



3. The following window then appears explaining how to run the test. Press **Enter** to close this window.

Figure 5. Device Notes



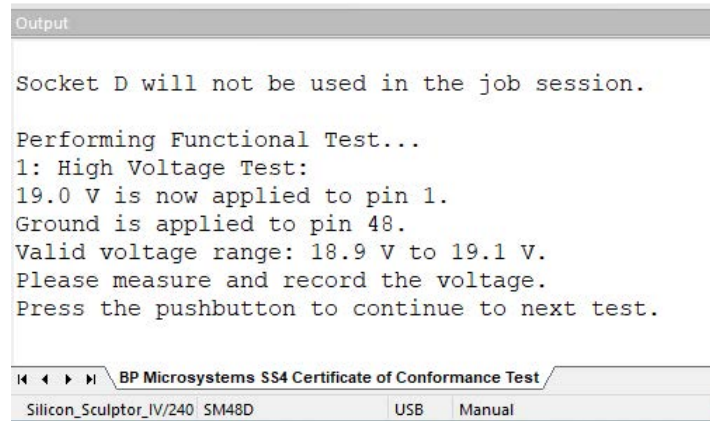
4. Click **Execute** to start the test.

High Voltage Test

To conduct the high voltage test, perform the following steps:

1. Connect the voltmeter probes to pins 1 and 48.

Figure 6. High Voltage Test



2. Measure the voltage of the pin 1 as shown in the following figure. Check if the voltage reading is within the specified range. If the voltage readings fall outside of the specified range, it indicates that the programmer is out of calibration and requires service. The following figure shows voltage measurement of the pin 1.

Figure 7. Voltage Measurement of the Pin 1



3. Press **Start** to move on to the next test.

Low Voltage Test

To conduct the low voltage test, perform the following steps:

1. Measure the voltage of the pin 1 as shown in the following figure. Check if the voltage reading is within the specified range. If the voltage readings fall outside of the specified range, it indicates that the programmer is out of calibration and requires service.

Figure 8. Low Voltage Test

```
1: Low Voltage Test:  
1.0 V is now applied to pin 1.  
Ground is applied to pin 48.  
Valid voltage range: 0.95 V to 1.05 V.  
Please measure and record the voltage.  
Press the pushbutton to continue to next test.
```

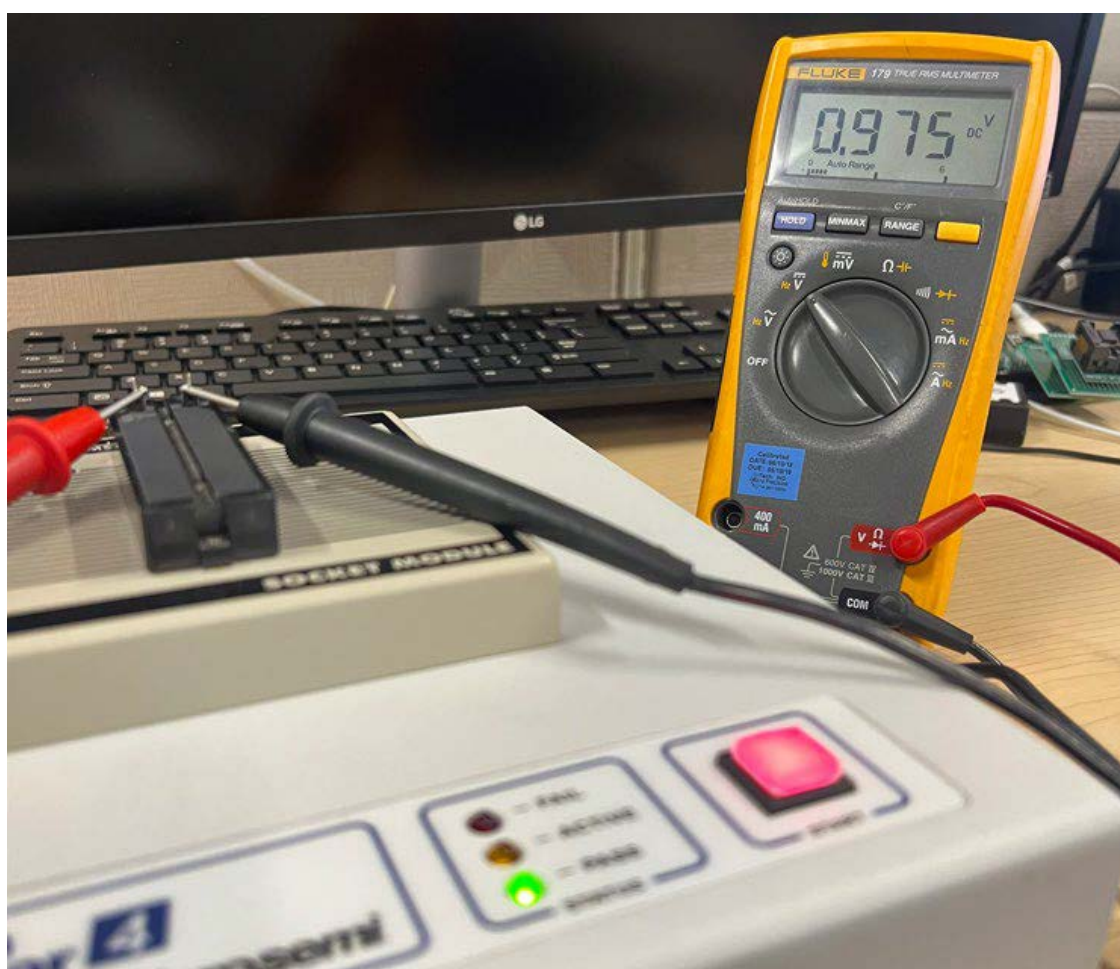
BP Microsystems SS4 Certificate of Conformance Test

Silicon_Sculptor_IV/240 SM48D

USB

Manual

Figure 9. Voltage Measurement of the Pin 1



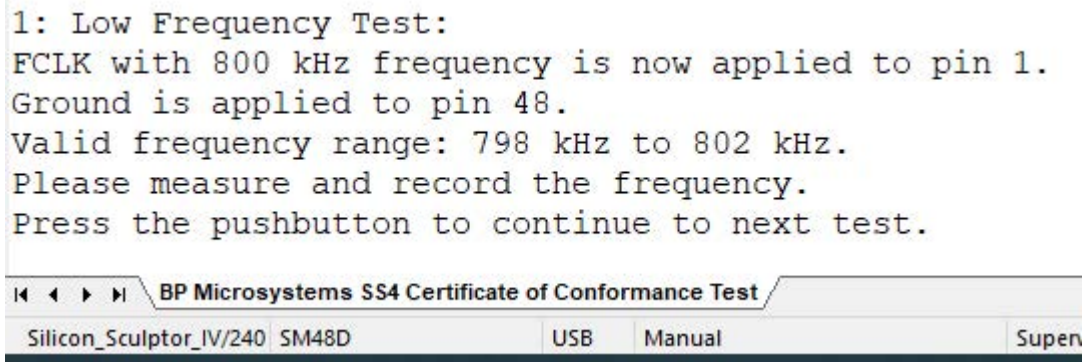
2. Press **Start** to move on to the next test.

Low Frequency Test

To conduct the low frequency test, perform the following steps:

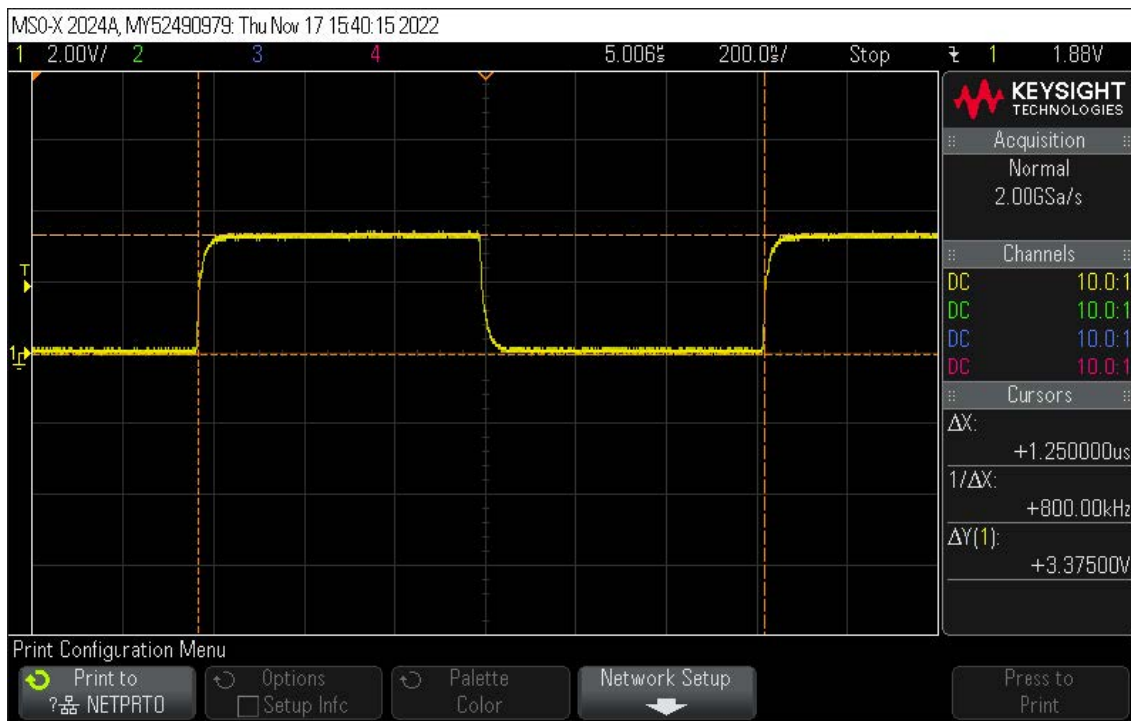
1. Connect the scope probe to pin 1 and ground to pin 48.

Figure 10. Low Frequency Test



2. Set the probe voltage of the oscilloscope to 2 V/Div.
3. Adjust the timing to see an entire wave period as shown in the following figure.

Figure 11. Expected Result of Low Frequency Test



4. Measure the frequency of one period of the wave form. Check if the frequency reading is within the specified range. If the measured frequency falls outside of the specified range, it indicates that the programmer is out of calibration and requires service.
5. Press **Start** to move on to the next test.

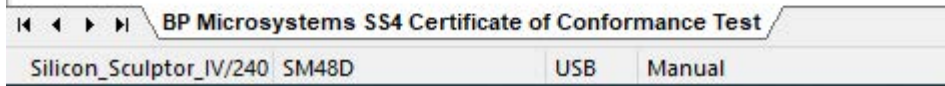
Pulse Width Test

To conduct the pulse width test, perform the following steps:

1. Set the trigger of the oscilloscope to capture the signal on the rising edge of the signal.

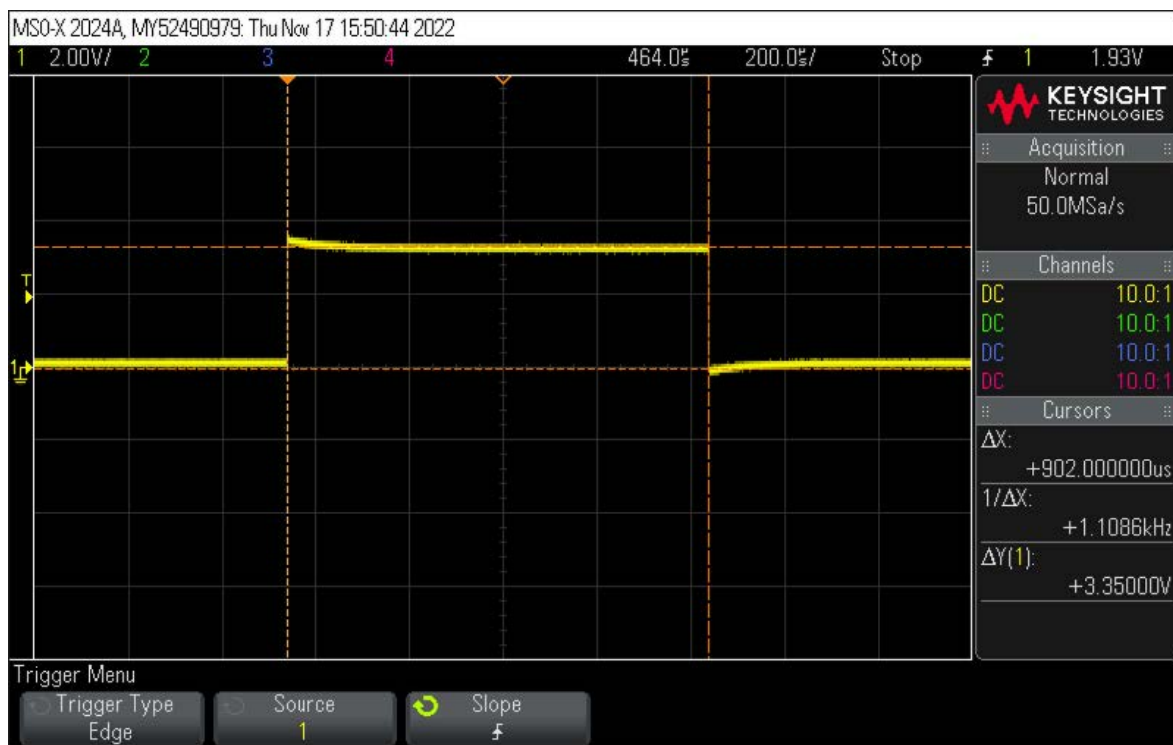
Figure 12. Pulse Width Test

```
1: Pulse Width Test:  
Now toggling pin 1 every 900 us.  
Ground is applied to pin 48.  
Valid pulse width range: 890 us to 910 us.  
Please measure and record the pulse width.  
Press the pushbutton to end the operation.
```



2. Measure the pulse width. Check if the pulse width reading is within the specified range. If the measured pulse width falls outside of the specified range, it indicates that the programmer is out of calibration and requires service. The following figure shows the expected result of pulse width test.

Figure 13. Expected Result of Pulse Width Test



3. Press **Start** to terminate the test.

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