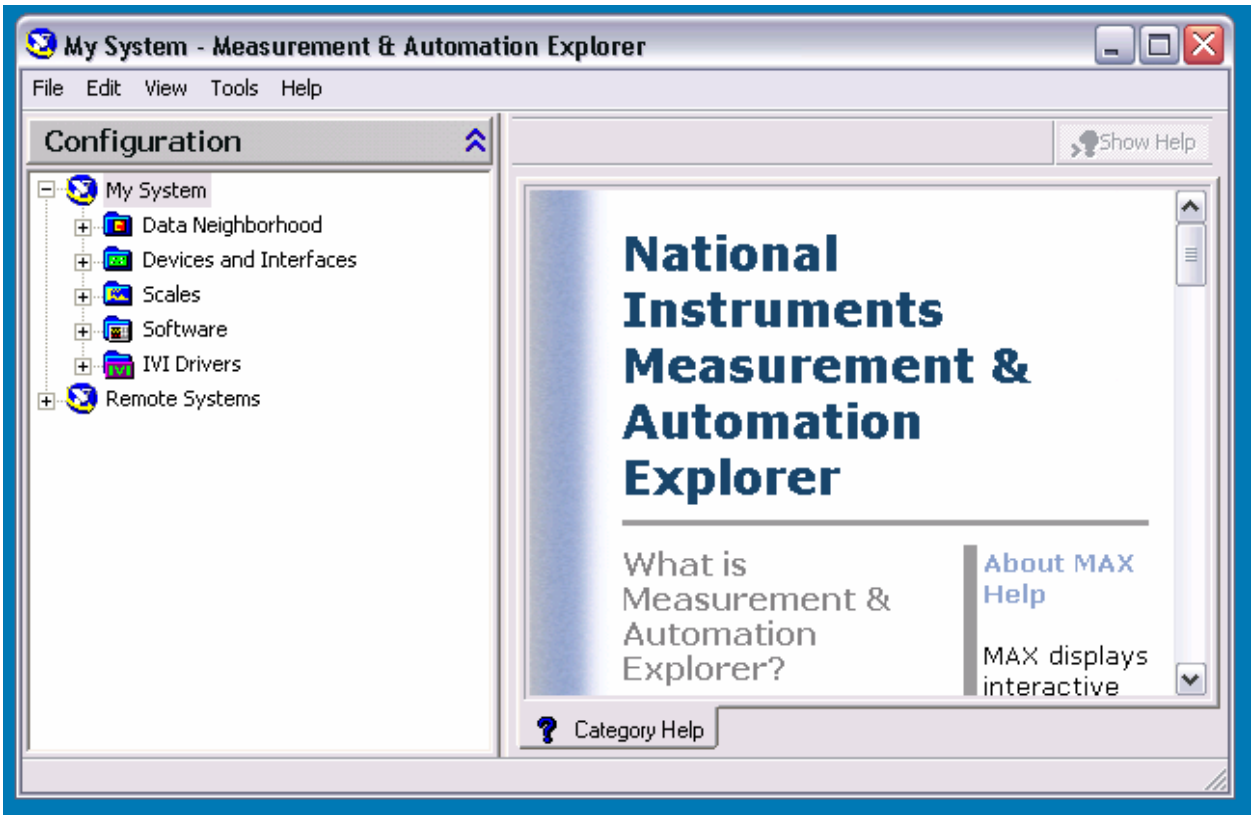
Step-by-Step Data Acquisition Part I Exercise 1:
Configuring a DAQ System in Measurement & Automation Explorer (MAX)

In this exercise, you configure a data acquisition (DAQ) board and an SCC signal conditioning carrier. After the configuration is complete, you will use test panels in MAX to verify the functionality of the DAQ system and perform self calibration of the device.

INSTALLING AND CONFIGURING DAQ HARDWARE

1. Visit http://ni.com/trylabview and click on the **Try LabVIEW Online** link to access the LabVIEW Online Evaluation. Once your browser has been tested, click Continue and you will be directed to the remote desktop.

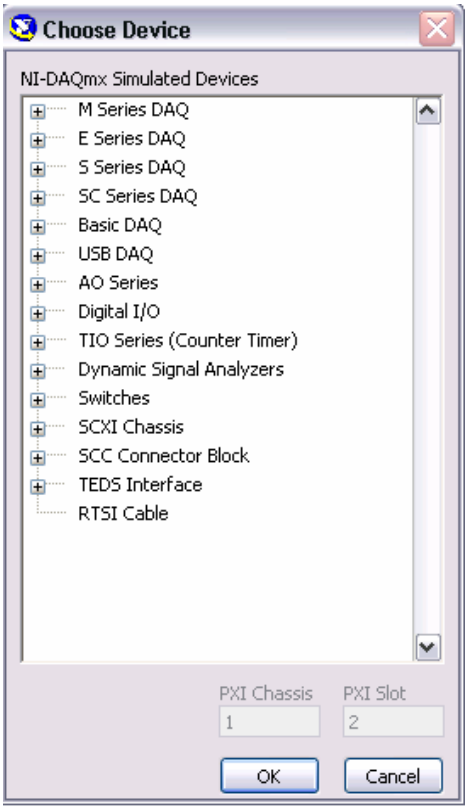
2. Click **Start » All Programs » National Instruments » Measurement & Automation** to launch NI Measurement & Automation Explorer (MAX). A screen like the one pictured below appears.



3. Click the + sign next to **Devices and Interfaces** in the configuration tree to expand the device list. Click the + sign next to **NI-DAQmx Devices** in the configuration tree.

4. You should see a PCI-6289 listed. It is yellow, because devices on this demo system are simulated devices. Actual installed devices are green.

5. To install a new simulated device, right-click on **NI-DAQmx Devices**, and select **Create New NI-DAQmx Device » NI-DAQmx Simulated Device**. The following window should appear



6. Select **M Series DAQ » PCI-6259** and click OK to install a high speed M Series data acquisition device. It should now appear in the Devices and Interfaces section.

7. Right-click on the PCI-6259 to and select **Self-Test** to perform a quick diagnostic test to ensure the data acquisition device is installed correctly.

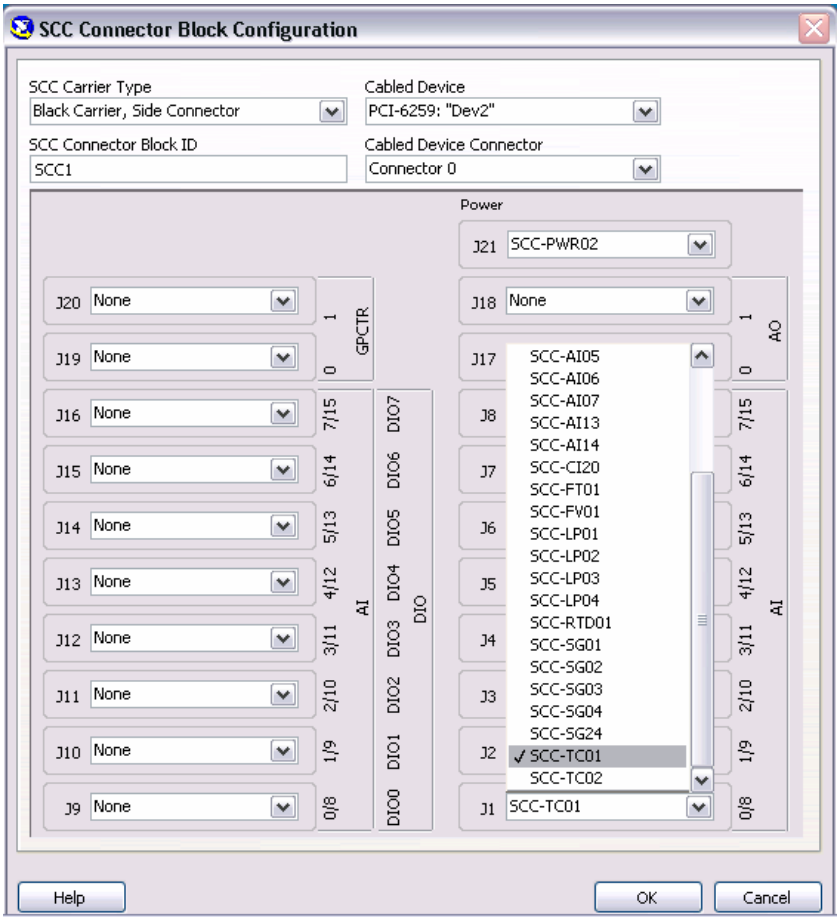
INSTALLING AND CONFIGURING SIGNAL CONDITIONING HARDWARE

8. To measure signals like temperature, strain, and others that require signal conditioning, you can add an SCC signal conditioning carrier by right-clicking on **NI-DAQmx Devices**, and select **Create New NI-DAQmx Device » NI-DAQmx Simulated Device** again. Select **SCC Connector Block » SC-2345** and click OK.

9. The SCC configuration window should now appear so that you can configure the modules that go inside the carrier. Ensure that the PCI-6259 that you installed is selected in the **Cabled Device** box

near the top of the window. This tells the configuration utility that the SC-2345 is physically connected to the PCI-6259.

10. In the J1 selector box near the bottom of the window, select the **SCC-TC01** module. This installs a thermocouple input module that provides signal conditioning such as cold junction compensation and amplification to thermocouple signals, allowing you to accurately measure temperature.
11. Repeat step 10 for J2 and J17, selecting the SCC-FT01 feedthrough module for both. Click OK to exit the configuration window.



12. Click the + sign next to the SC-2345 listing to expand it and show all modules installed.
13. Right-click on the SCC-TC01 module and select **Test Panels…**
14. A window now appears that will allow you to test that your signals are connected properly.

15. Change the **Mode** to Continuous and press **Start** to acquire data from the **SCC-TC01** module. A sine wave (simulated data) should appear to indicate that you have set up your system correctly.

Note: Since these are simulated devices, the data that appears in the test panels is simulated data and will not necessarily represent data that would be normal for a thermocouple.

SELF-CALIBRATING DAQ HARDWARE

16. Right-click on the PCI-6259 and select **Self-Calibrate** from the drop-down menu. Click **Next** to start the self calibration. A quick self calibration routine is performed, and results are reported by the software upon completion. Click **Finish** to exit the Self-Calibration wizard.

End of Part I Exercise 1