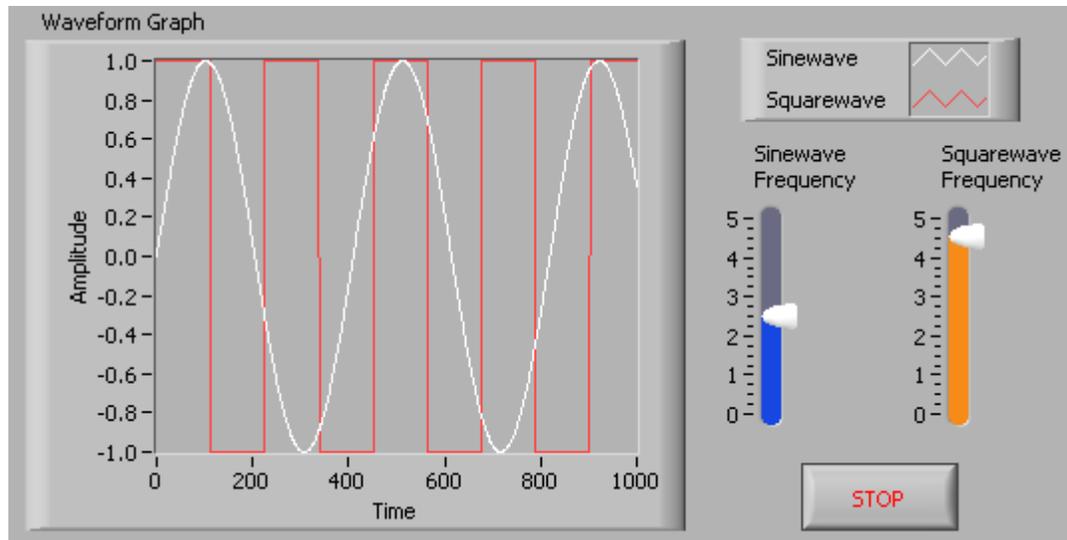


PH2150
LabVIEW Course
Exercises 6,7
G Boorman 2011

Exercise 6 - Using Waveform Graphs

Front Panel

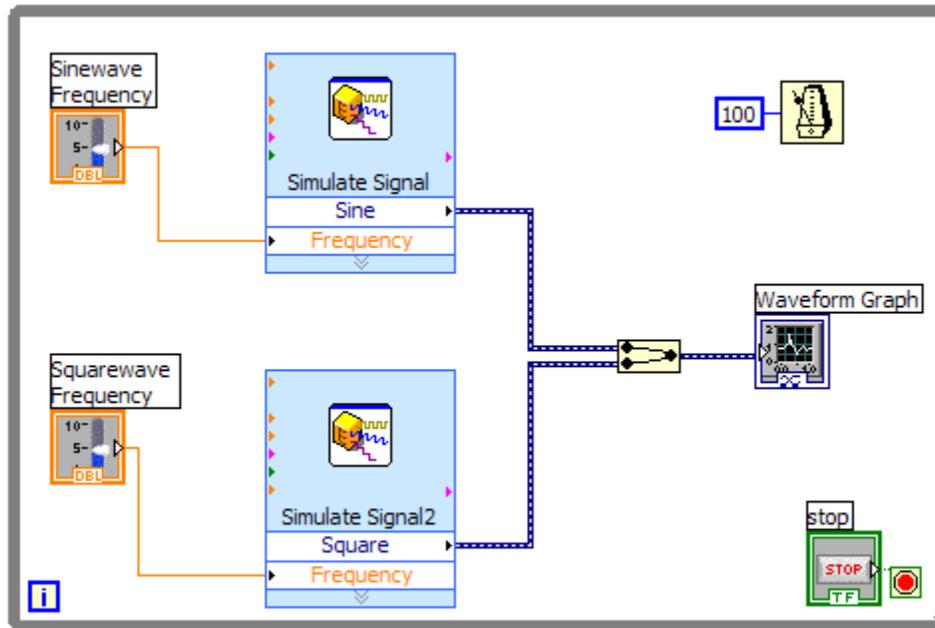
1. Open a new VI and build the following front panel using the following tips.



- a. Create a *waveform graph* indicator from the **Modern»Graph** palette. Use the position/size/select tool to move the plot legend to the side, and expand it to display two plots. Use the labeling tool to change the plot names and the properties page to choose different colors for your plots.
- b. Place a Stop button on the front panel.
- c. Place two vertical pointer slides from the **Modern»Numeric** palette. Use the properties page again to change the slide fill color.

Block Diagram

2. Build the following block diagram.



- a. Place a *While Loop* from **Programming»Structures** palette.
- b. Place a *Wait Until Next ms Multiple* from **Programming»Timing** and create a constant with a value of 100.
- c. Place two *Simulate Signal Express VIs* from **Express»Input** and leave the Signal type as Sine for the first Simulate Signal VI and change the Signal Type to Square for the second VI. In the *timing* section change *Number of Samples* to 1000, and unclick *automatic*.
- d. Wire both of the outputs into the waveform graph. A Merge Signals function will automatically be inserted.
- e. Expand (by dragging the lower edge) the Simulate Signal Express VIs to show another Input/Output. By default, error out should appear. Change this to Frequency by clicking on error out and choosing **Frequency**.

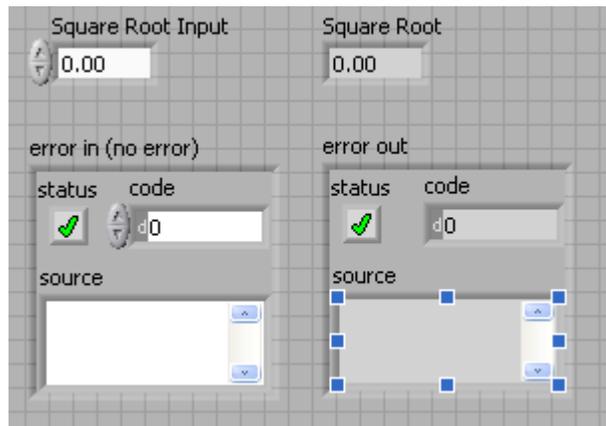
3. Save the VI as Multiplot Graph.vi.
4. Display the front panel and run the VI.
5. Save and close the VI.

End of Exercise

Exercise 7 - Error Clusters & Error Handling

Front Panel

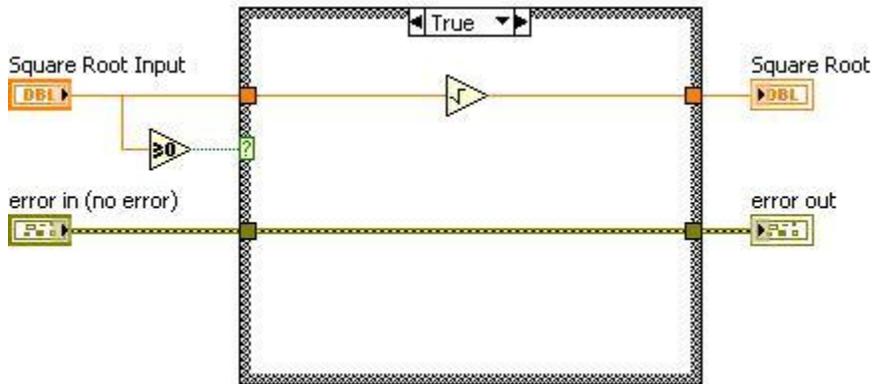
1. Open a new VI and build the following front panel using the following tips.



- a. Create a numeric control and change the Label to Square Root Input. Create a numeric indicator for Square Root.
- b. Place *Error In 3D.ctf* from **Modern»Array, Matrix & Cluster**.
- c. Place *Error Out 3D.ctf* from **Modern»Array, Matrix & Cluster**.

Block Diagram

2. Build the following block diagram.

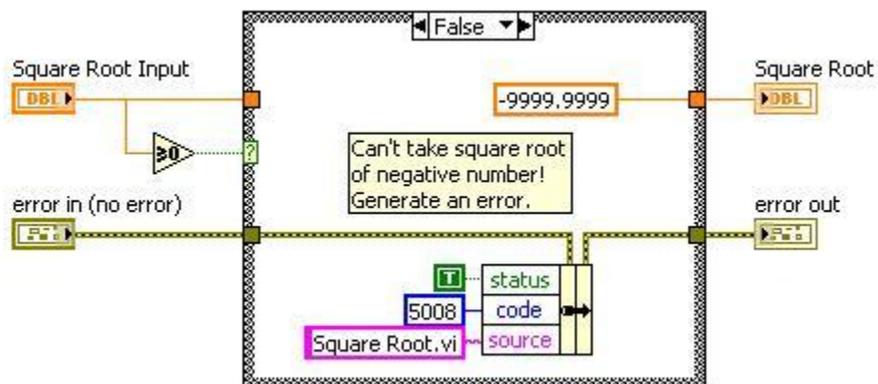


- a. Place a *Case Structure* from **Programming»Structures** palette.
- b. Place a *Greater or Equal to 0* function from the **Programming»Comparison** palette and wire it to the condition terminal of the case structure.

In the True Case:

- c. Place the *Square Root* function from **Programming»Numeric** palette.

In the False Case:



- d. Create a *numeric constant* from **Programming»Numeric** palette and type -9999.9999.

- e. Place the *Bundle By Name* from **Programming»Clusters & Variant** palette. Wire from Error in to the center terminal of *Bundle by Name* to make status show up. Create constants. Wire from the Error Out indicator to the output of Bundle By name.
3. Save the VI as Square Root.vi.
 4. Display the front panel and run the VI. Run with both positive and negative numbers and check the VI works as expected. If not, why not? Right-click the Square Root indicator and select **Display Format...** Change the *Digits* and *Precision Type* values to see how they work.
 5. Save and close the VI.
 6. (Optional) Change the representation of the Square Root control and indicator to *Complex Double (CDB)*. Remove the *Greater or Equal to 0* function and wire in a *True* constant to the case selector instead. Run the VI with various input numbers. Does it work as expected?

End of Exercise