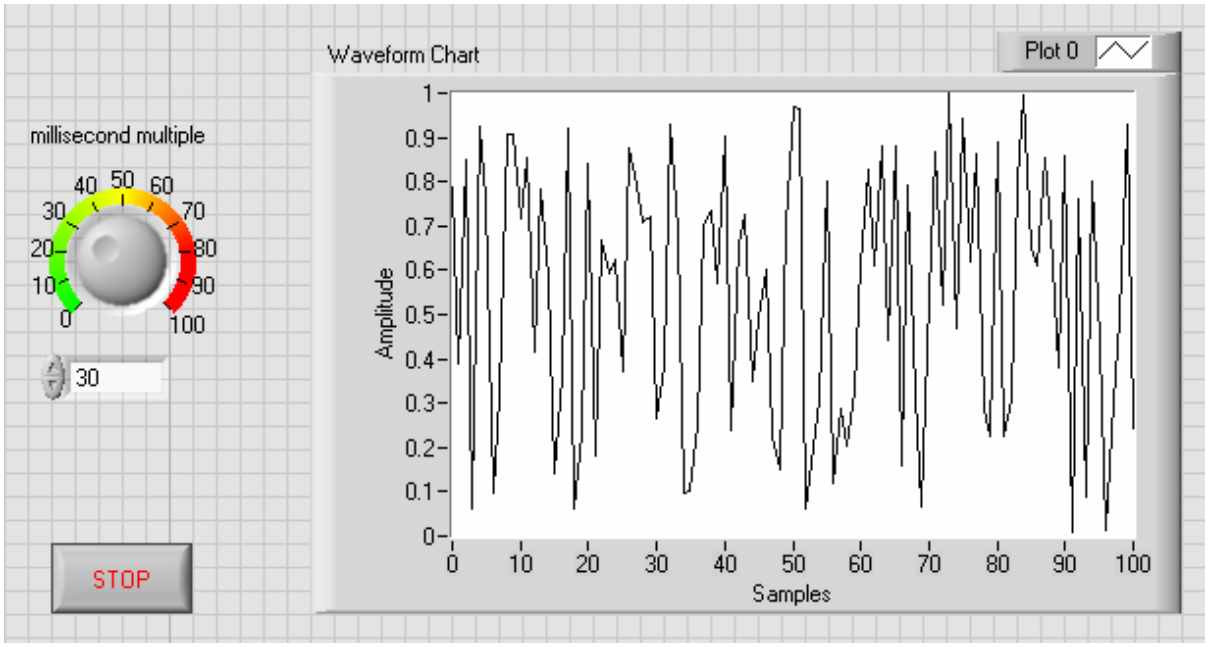
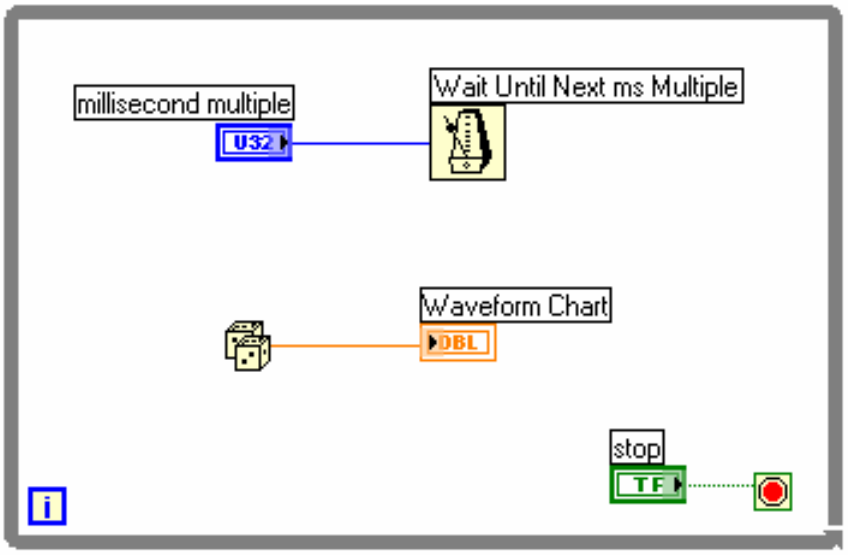
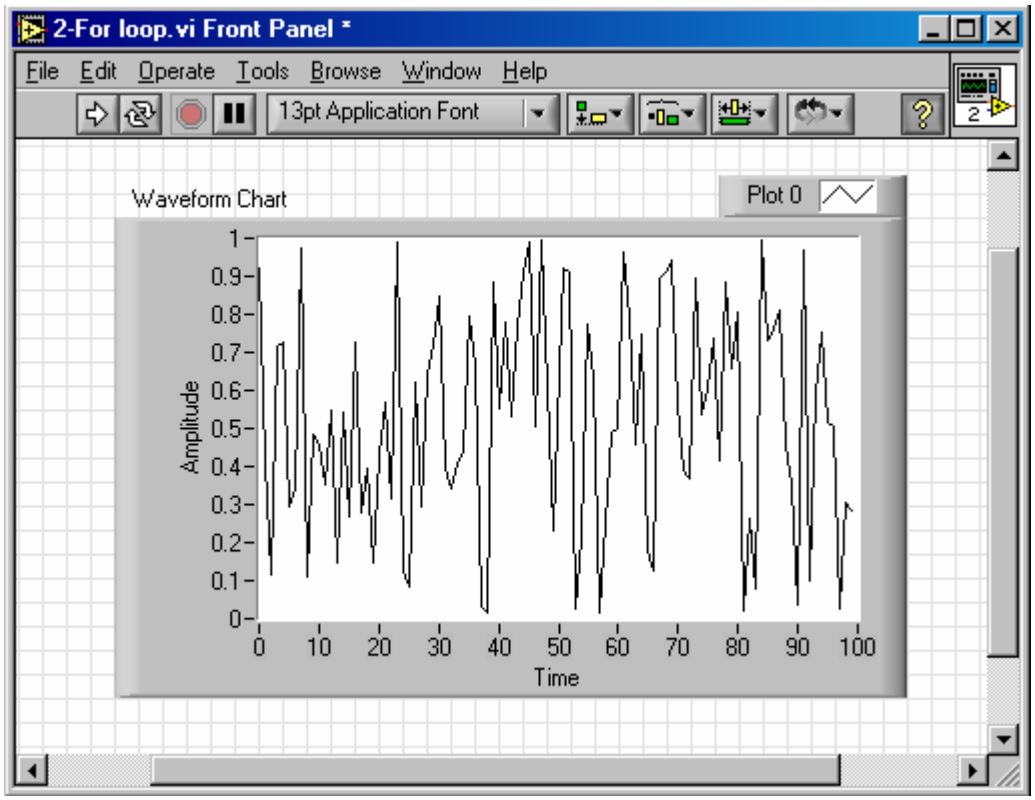
Examples on While Loop & Charts

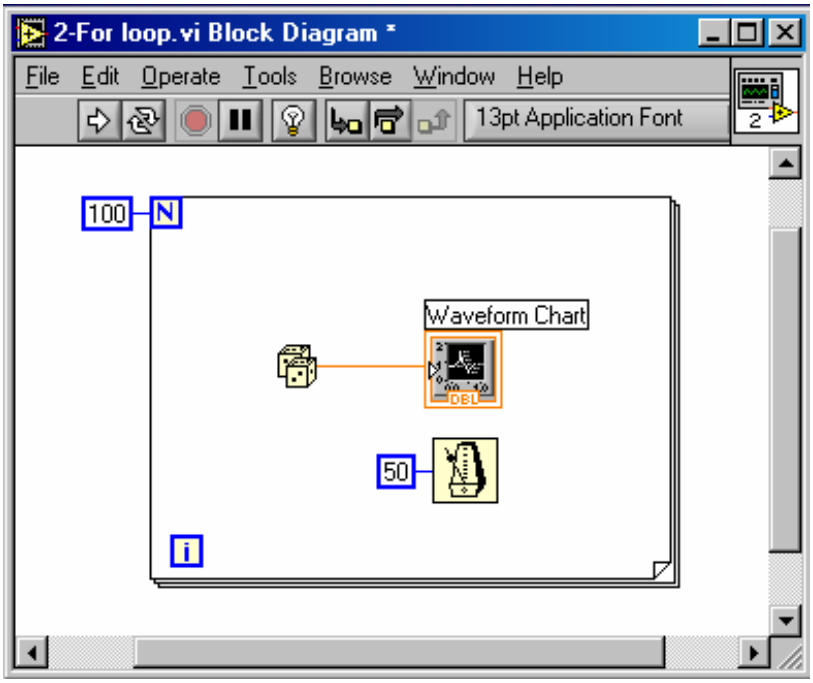
Example 1. Generate a random number every 30 ms and display it on a waveform chart.



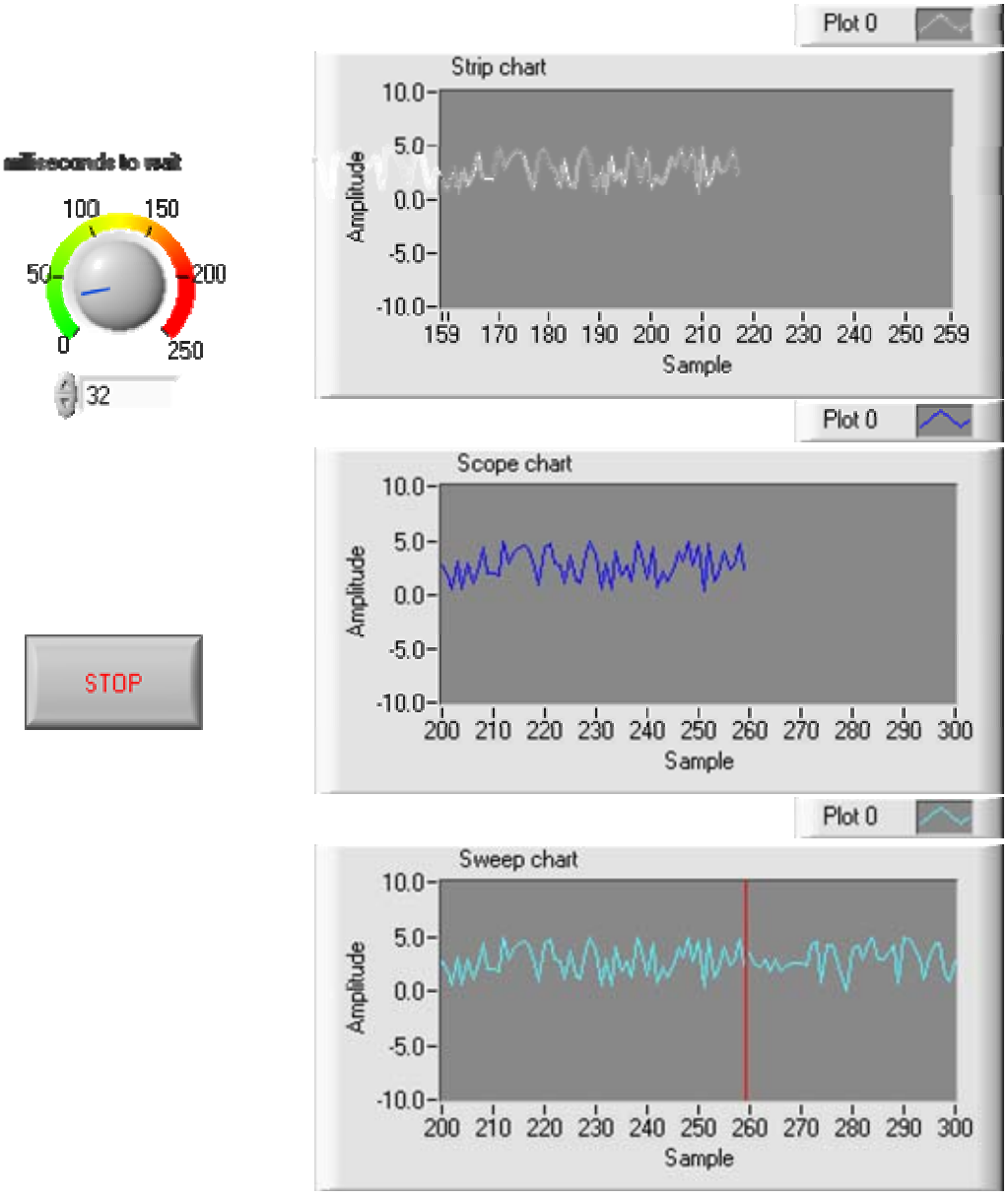


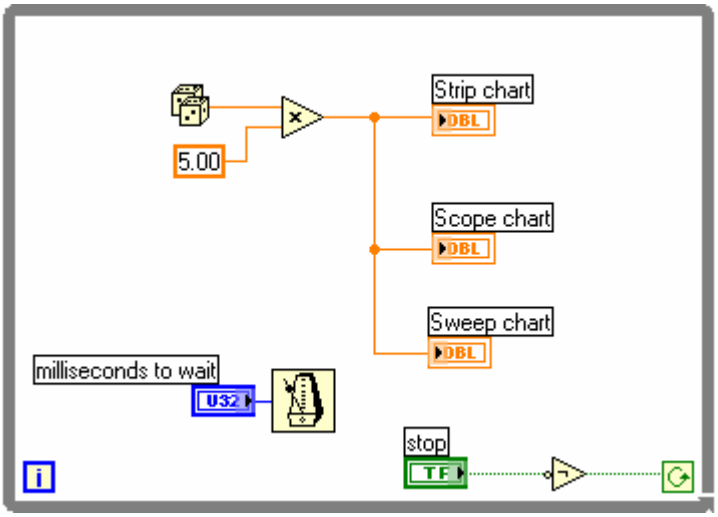
Example 2: Use of FOR LOOP



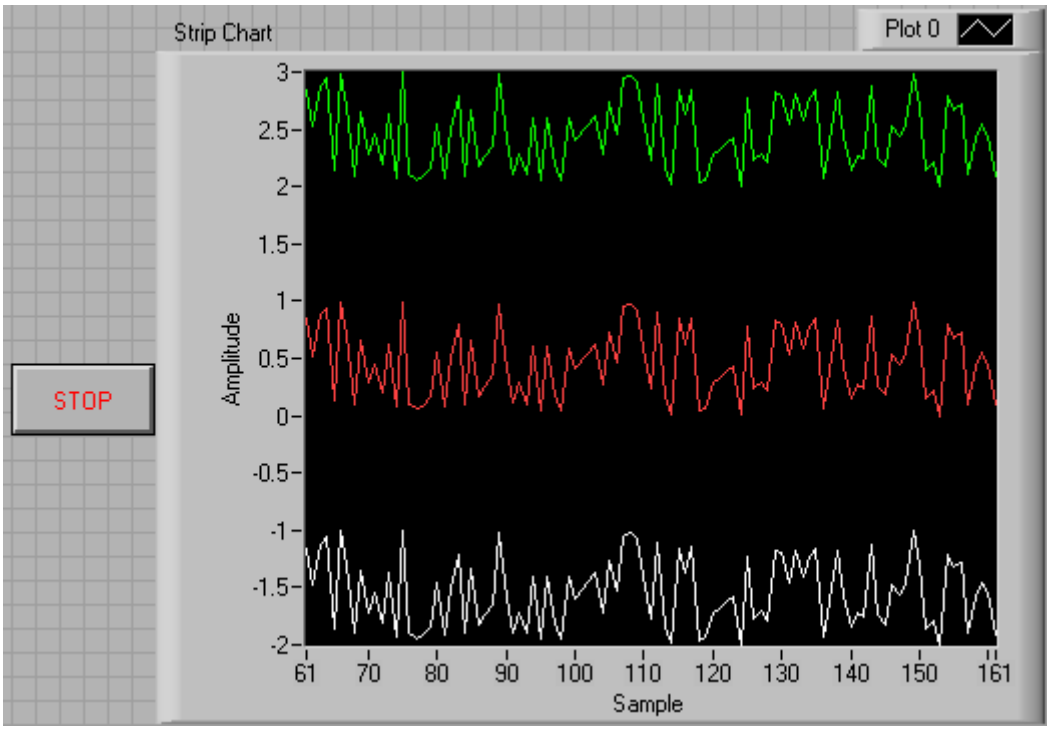


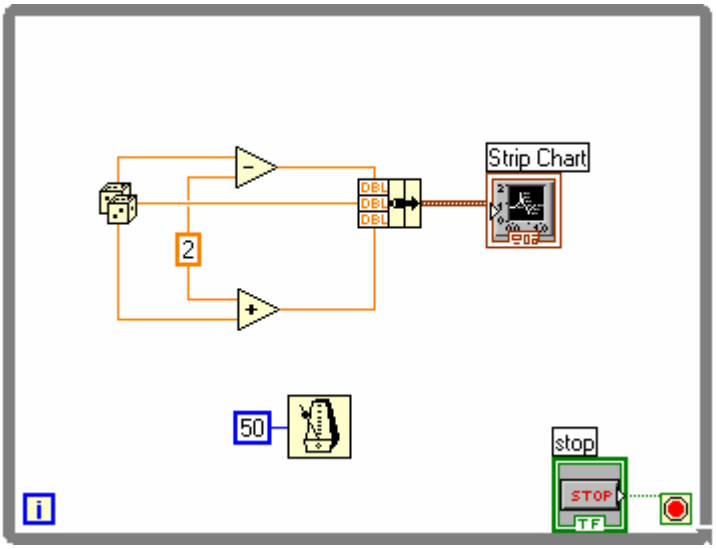
Example 3: Types of Waveform charts





Example 4: Multiple plot in a single waveform chart



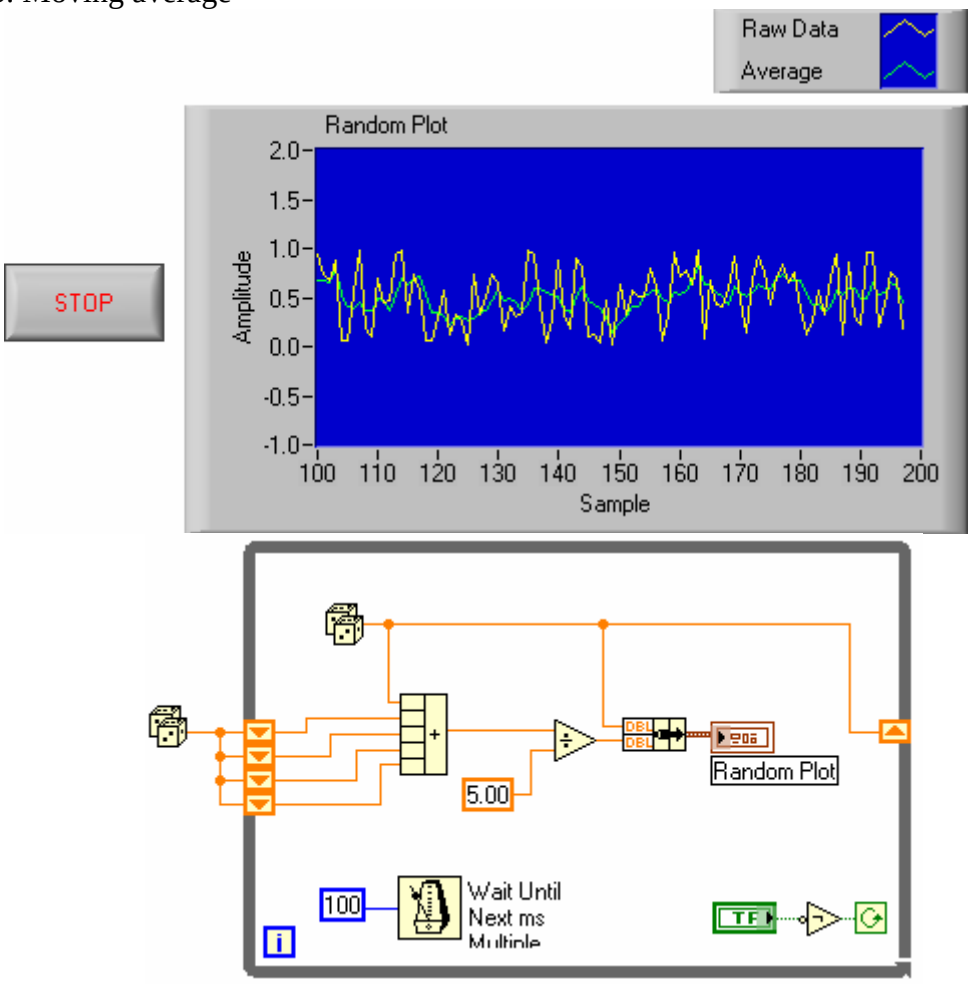


Understanding Boolean Mechanical Actions

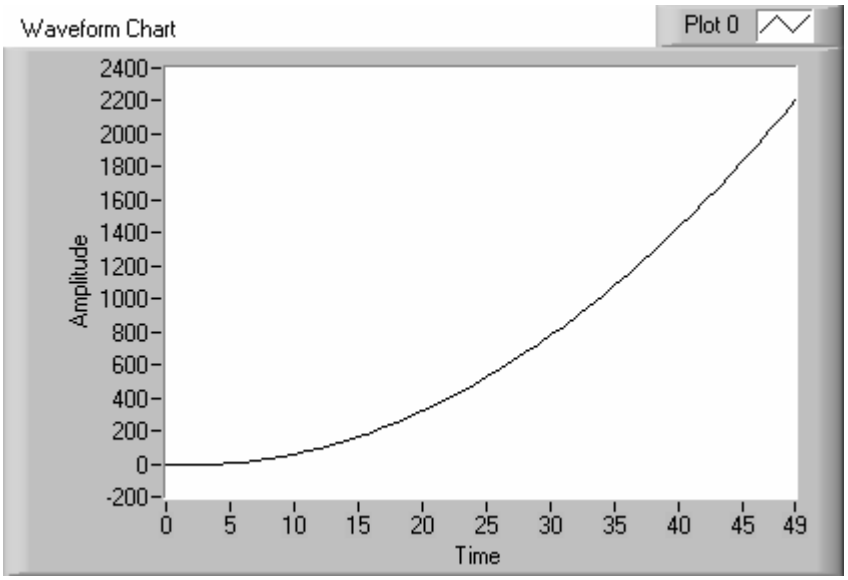
LabVIEW Boolean controls may behave in one of six different ways. Each behavior, called a mechanical action, is associated with one of the buttons below, along with its picture, a light, and a counter. The buttons are read in the diagram **once a 500 msec.** The light turns on and the counter increments when the buttons 's value is true. The light turns off and the counter stays the same when the button's value is false. The default state for all these buttons is false. There are two kinds of Boolean mechanical action: switch and latch. Switch will return to its default state when directed by the user. Latch will return to its default state when directed by the user *or* when its value has been read by LabVIEW.

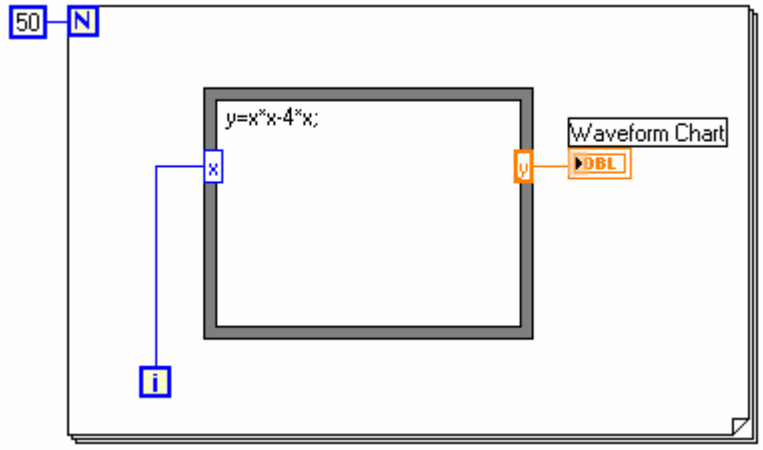
switch when pressed — OFF — 0 — Change state on a button press. Remain there until another button press.	latch when pressed — OFF — 0 — Change state on a button press. Change back when the control is read by LabVIEW.
switch when released — OFF — 0 — Change state on a button release. Remain there until another button release.	latch when released — OFF — 0 — Change state on a button release. Change back when the control is read by LabVIEW.
switch until released — OFF — 0 — Change state on a button press. Change back when the button is released.	latch until released — OFF — 0 — Change state on a button press. Change back when released and read by LabVIEW.

Eample 5: Moving average



Example 6: Use of Formula Node





Loops & Chart Summary

- The *While Loop* and the *For Loop* are two structures you can use to repeat execution of a subdiagram.
- The *While Loop* executes as long as the value wired to the conditional terminal is TRUE.
- The *For Loop* executes a predetermined number of times, such as the value wired to the count terminal.
- Loops are created by either enclosing the subdiagram to be repeated in the loop boundary or clicking and dragging the individual nodes inside the boundary with the mouse.
- The **Wait Until Next ms Multiple** function ensures that no iteration is shorter than a specified number of milliseconds (1,000 ms equals one second). This function can control the loop timing.
- The *waveform chart* is a special numeric indicator that displays one or more plots.
- The waveform chart has three update modes—the strip chart, the scope chart, and the sweep chart.
  – Strip chart: scrolling display
  – Scope chart: plots data until it reaches the right border, erases the plot, and retraces the plot from left border
  – Sweep chart: retracing display with moving vertical line between old and new data
- Shift registers are used to remember stored values from one iteration of a loop to the next.
- For each iteration you want to recall, you must add a new element to the left terminal of the shift register by popping up on the shift register and selecting **Add Element.**