Box and Whiskers Plots

EXCEL does not have a built-in chart type to create box and whiskers plots. They can be created, however, by an interesting modification of an EXCEL stock chart, specifically the Open-High-Low-Close chart. An example box and whiskers plot is shown in the companion spreadsheet.

Suppose you want a box and whiskers plot to show the max, min, and median values with a box representing the range from the lower quartile to the upper quartile. This is a classic plot used in hydrology.

To create this plot, use the following steps:

Step 1. Create a column (for each series, for example for each month) with the required information presented in the following order:
   - Upper Quartile
   - Max
   - Min
   - Median
   - Lower Quartile

EXCEL has a Quartile function you can use to easily build the required information:
   - QUARTILE(range,3)
   - QUARTILE(range,4)
   - QUARTILE(range,0)
   - QUARTILE(range,2)
   - QUARTILE(range,1)

Step 2. Highlight the first four rows of the range only. Choose the Insert menu, then Chart, then Stock, then Open-High-Low-Close. If the chart is not displayed in the dialogue box, Choose series in rows, and the chart should appear. Note that the chart has the boxes with a solid fill. Continue through the Chart Wizard adding appropriate titles, etc., and put the graph in the desired location. Please note that the graph is not complete or correct at this point!

*** NOTE: We discovered a bug in EXCEL 2007 with this Open-High-Low-Close chart. If
you have less than 4 columns of data you get an error message. If you do have less than four columns of data, include additional blank columns so it thinks you have selected four columns. It will not plot the blank columns so it won’t hurt the graph. Once the graph is created you can use Select Data and reduce the size of you series range. This bug only happens when you initially create the graph.

Step 3. Left-click on the boxes on the graph to select them, and then right-click to format them. I usually like to have no fill and a thicker border. Click OK to return to the graph.
Step 4. Move the mouse pointer to the intersection of the lower border of the box and the vertical line. You should see a box appear telling you the value of that point. Left-click the point and then right-click it. Choose Format Data Series, select a marker style and color (I like a horizontal line) and adjust the size of the marker as desired. Click OK to return to the graph.

Step 5. Right click on the graph and choose Select Data. Go to the Series tab and choose Add Series. Select the final row in the data column (lower quartile) for the series data. The graph should now have the correct form. The vertical line indicates the range from max to min, the median is shown by the marker you selected and the box should extend from the lower to the upper quartile.

I personally do not include legends on this graph, since I feel the meaning of the graph is self-explanatory.