Using Wires and Busses in Quartus Block Diagram/Schematic (bdf) Files

In Quartus schematic entry (bdf) files you can use a "wire" to have multiple names for the same signals. A wire looks like an inverter without the bubble as shown in Figure 1
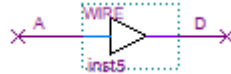

Figure 1: Wire in Quartus allows you to have two names for the same signal.

In Quartus schematic entry (bdf) files you can have bus signals, i.e., multiple signals that are grouped together with subscripts. There is a thick wire symbol, shown circled in Figure 2, which denotes a bus. Figure 3 shows an example of a bus of 3 signals called X, i.e., X[2..0] = X[2], X[1], X[0], as inputs to a "wire" with output Y.
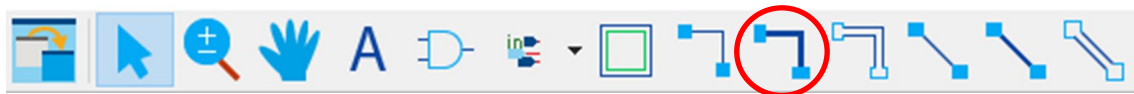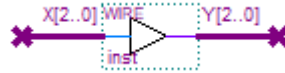

Figure 2: Bus symbol circled in red.

Figure 3: A bus in Quartus for multiple signals, grouped together; subscripts to differentiate the signals.

Figure 4 several examples of wires and busses in a Quartus schematic entry (bdf) file. For example the signal X (X[5..0]) appears as X[2..0] and X[3] in various places in the block diagram/schematic (bdf) file. This figure also shows an LPM (library of parameterized modules) of a variable-sized OR gate that allows for a variable number of inputs (and outputs). A simulation of the schematic a Figure 4 is shown in Figure 5.
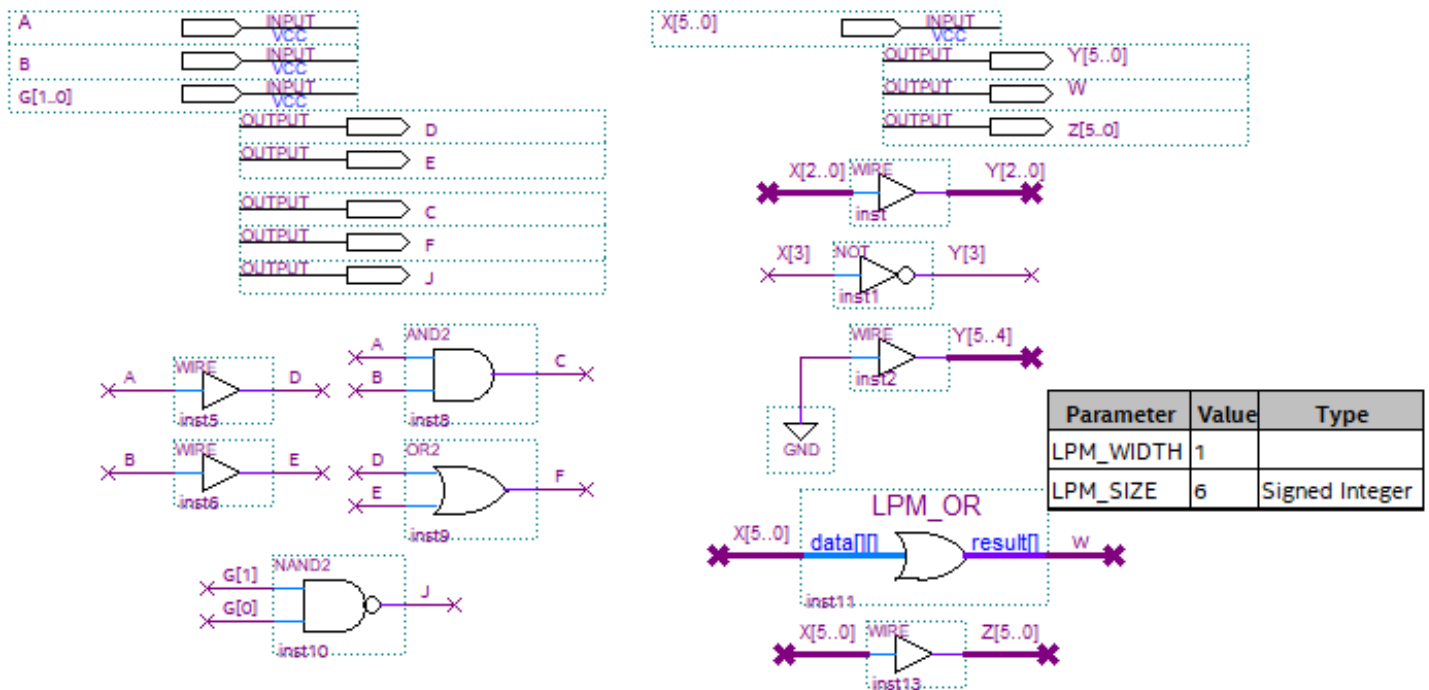

Parameter	Value	Type
LPM_WIDTH	1	
LPM_SIZE	6	Signed Integer

Figure 4: Schematic entry file demonstrating buses.
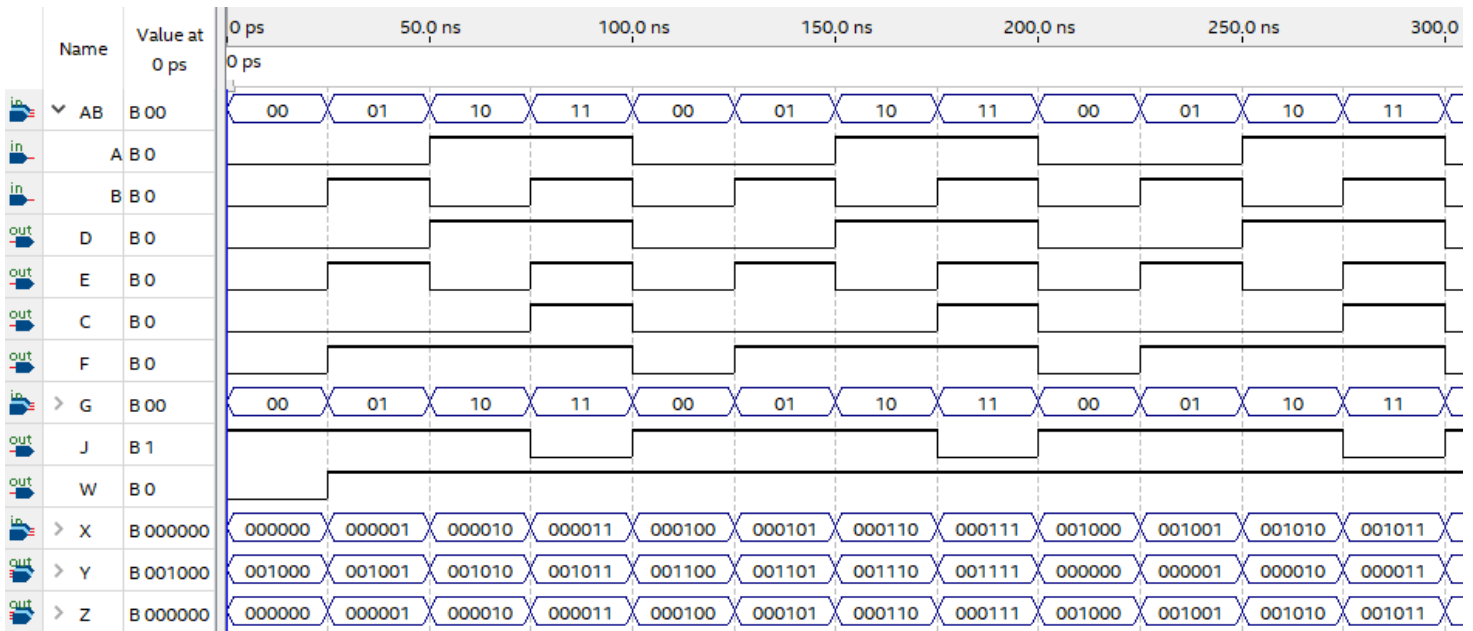
Using Wires and Busses in Quartus Block Diagram/Schematic (bdf) Files

Figure 5: Simulation of the circuit in Figure 4.