Schematic Generation

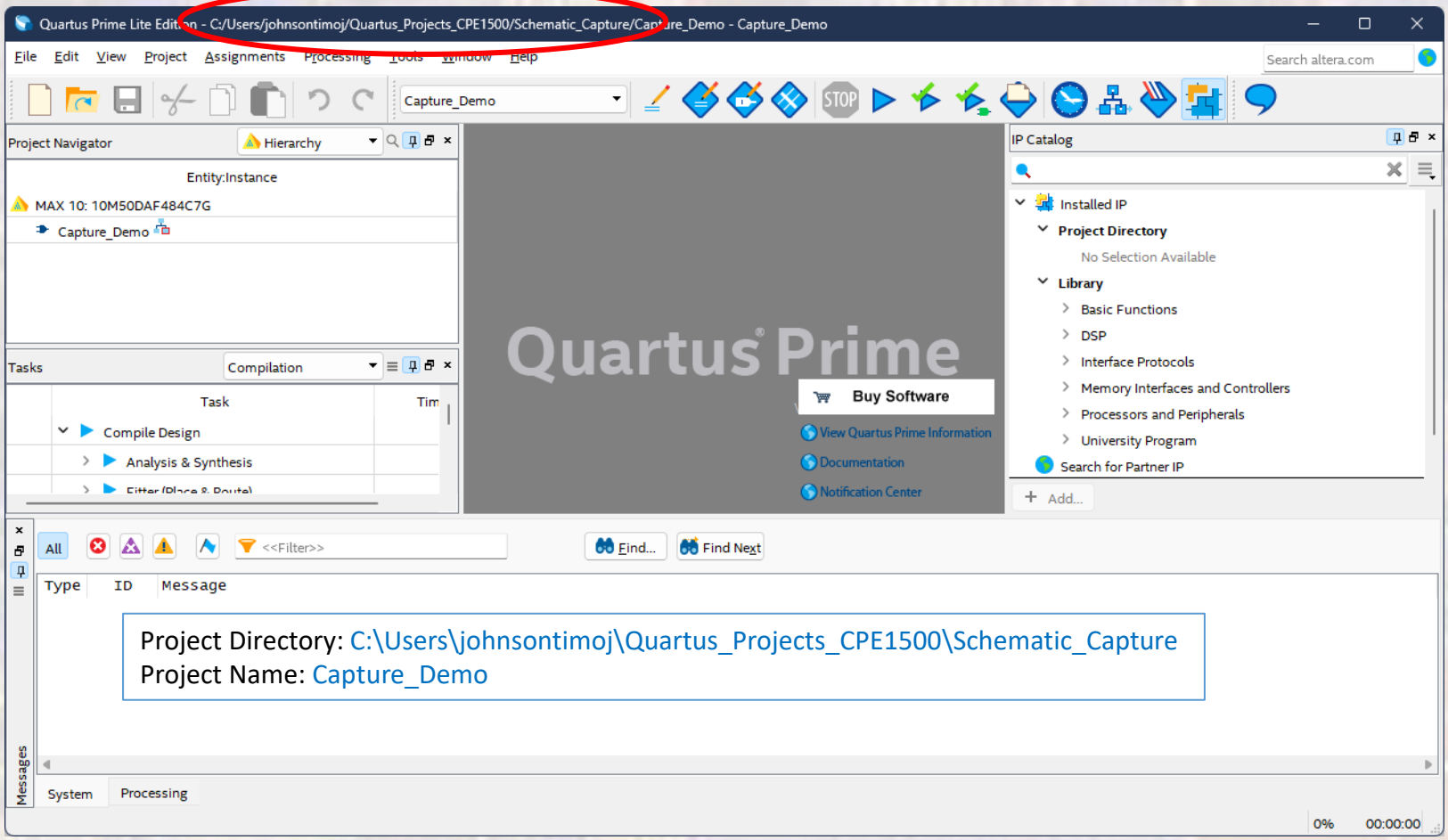
Last updated 1/13/25

Schematic Generation

- Graphical Design Capture
  - Process
    1. Create a new Quartus Project – see the Quartus Project Setup slides
    2. Open a new Block Diagram / Schematic File (BDF)
    3. Place components onto the schematic
    4. Wire the components together
    5. Add input and output pins
    6. Set Top Level Entity
    7. Run Analysis to verify connectivity

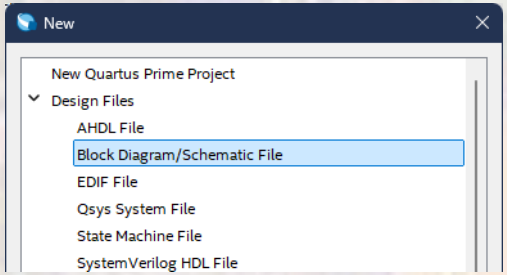
Schematic Generation

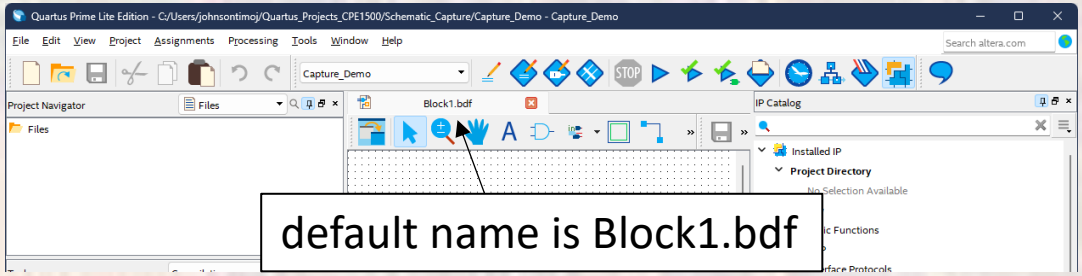
1. Create a new Quartus Project – see the Quartus Project Setup slides



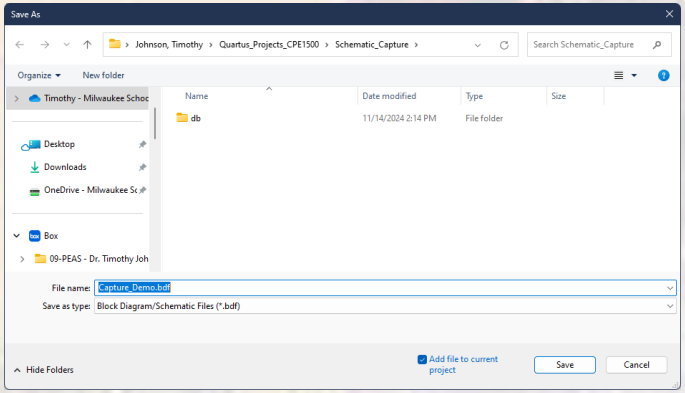
Schematic Generation

2. Open a new Block Diagram/Schematic File (BDF)
   - File → New → Block Diagram/Schematic File
   - OK



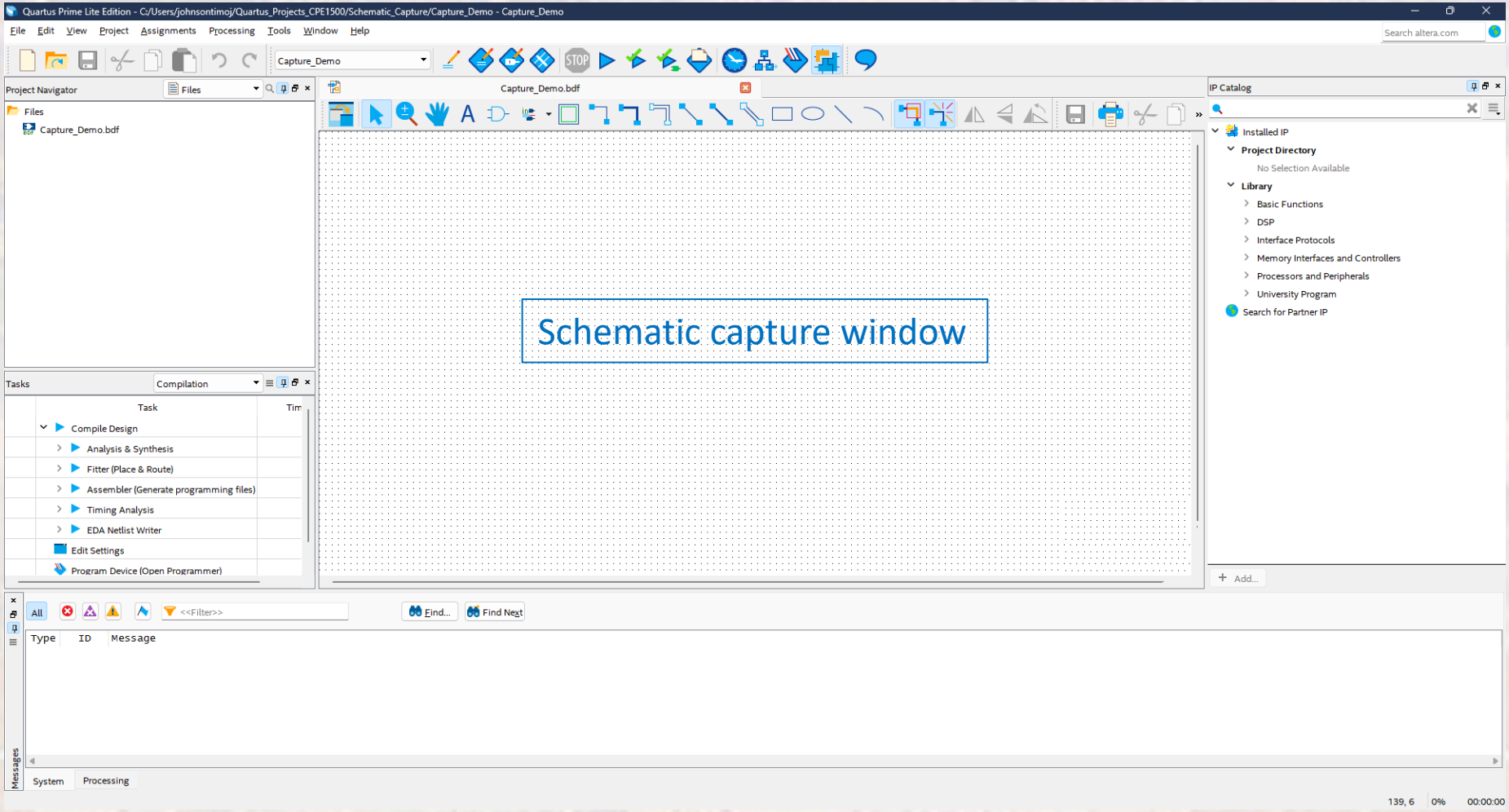


   - File → Save As
     - Change the name to a descriptive name
   - Save



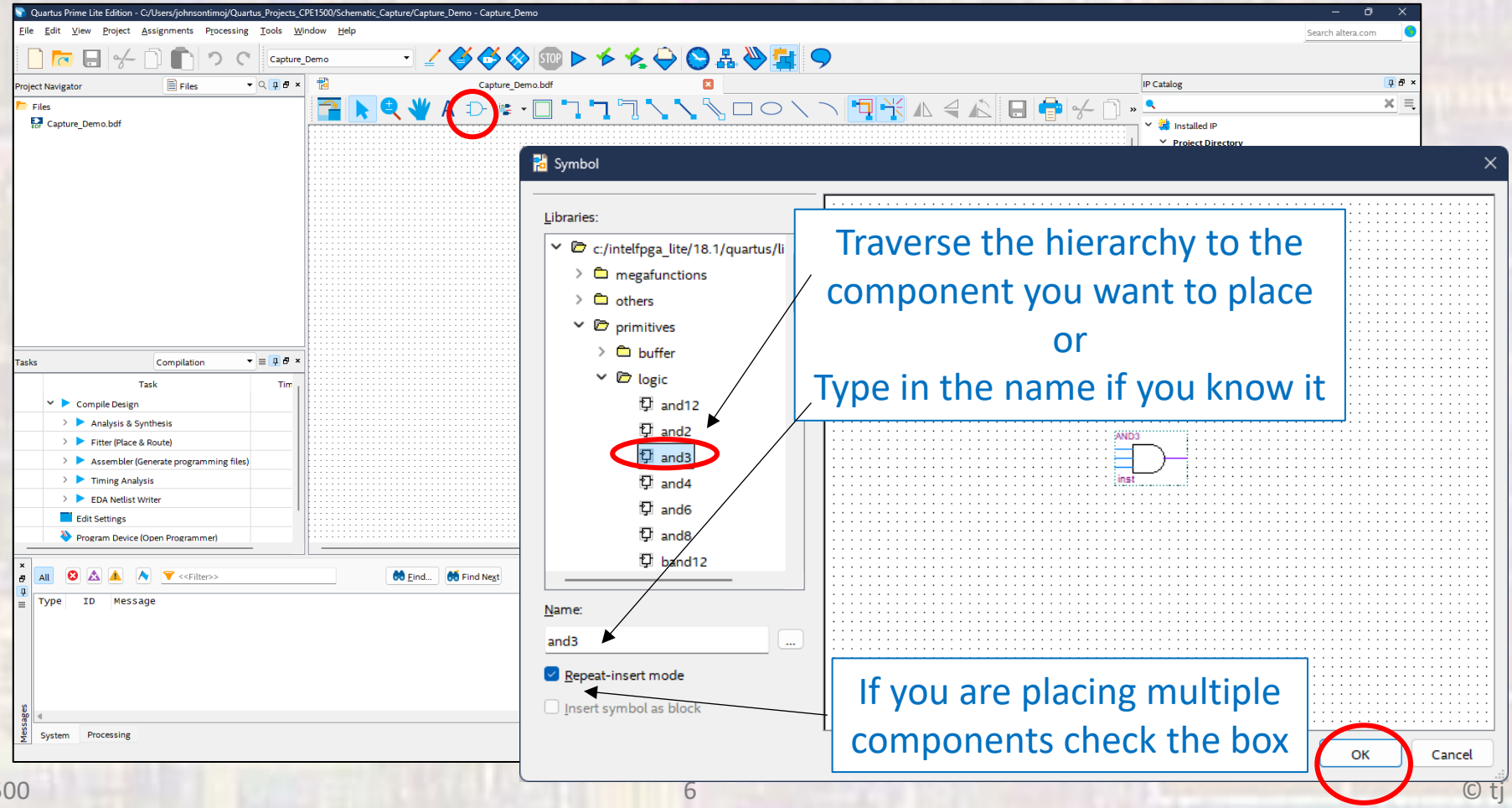
Schematic Generation

3. Place components onto the schematic



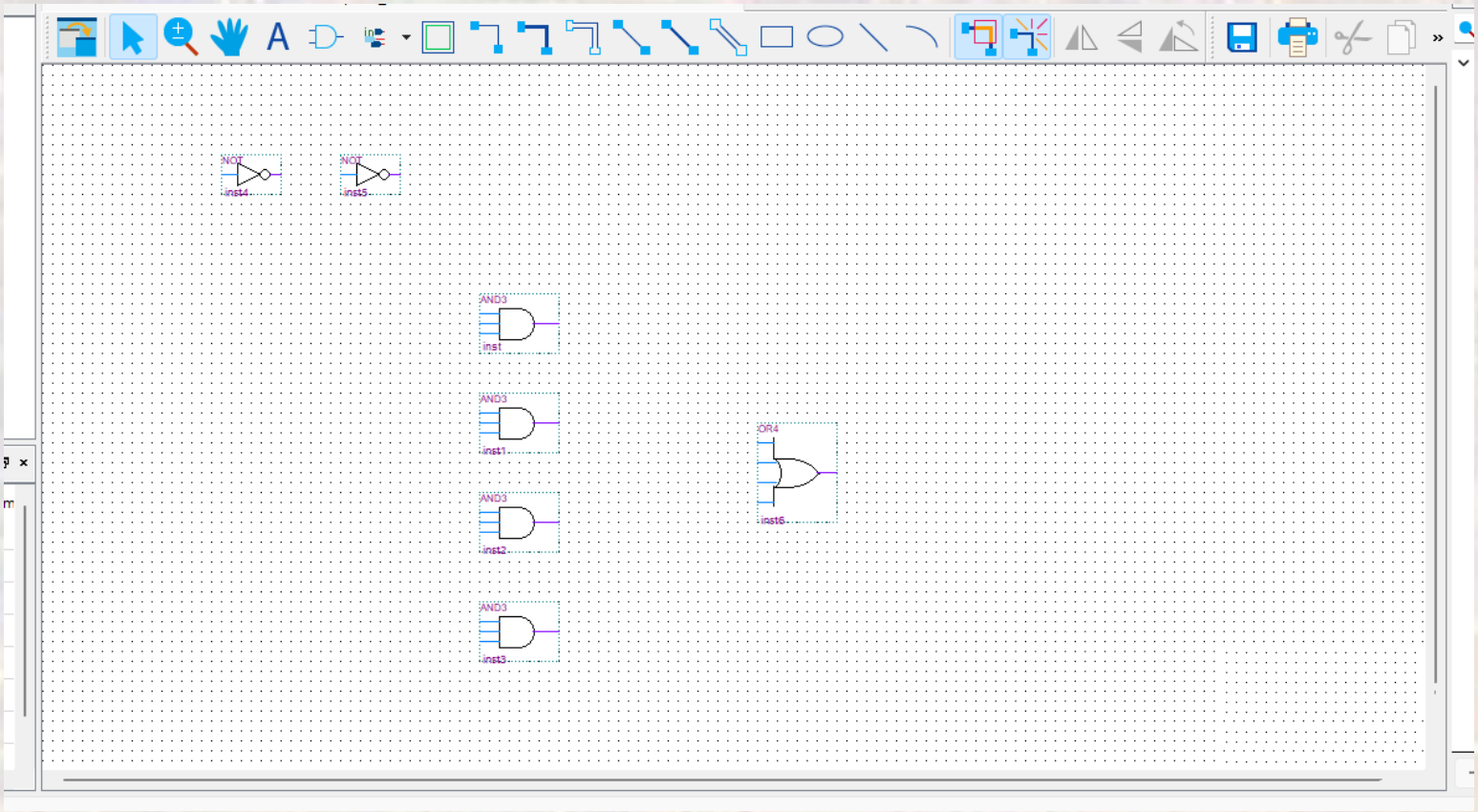
Schematic Generation

3. Place components onto the schematic
   - Select a component



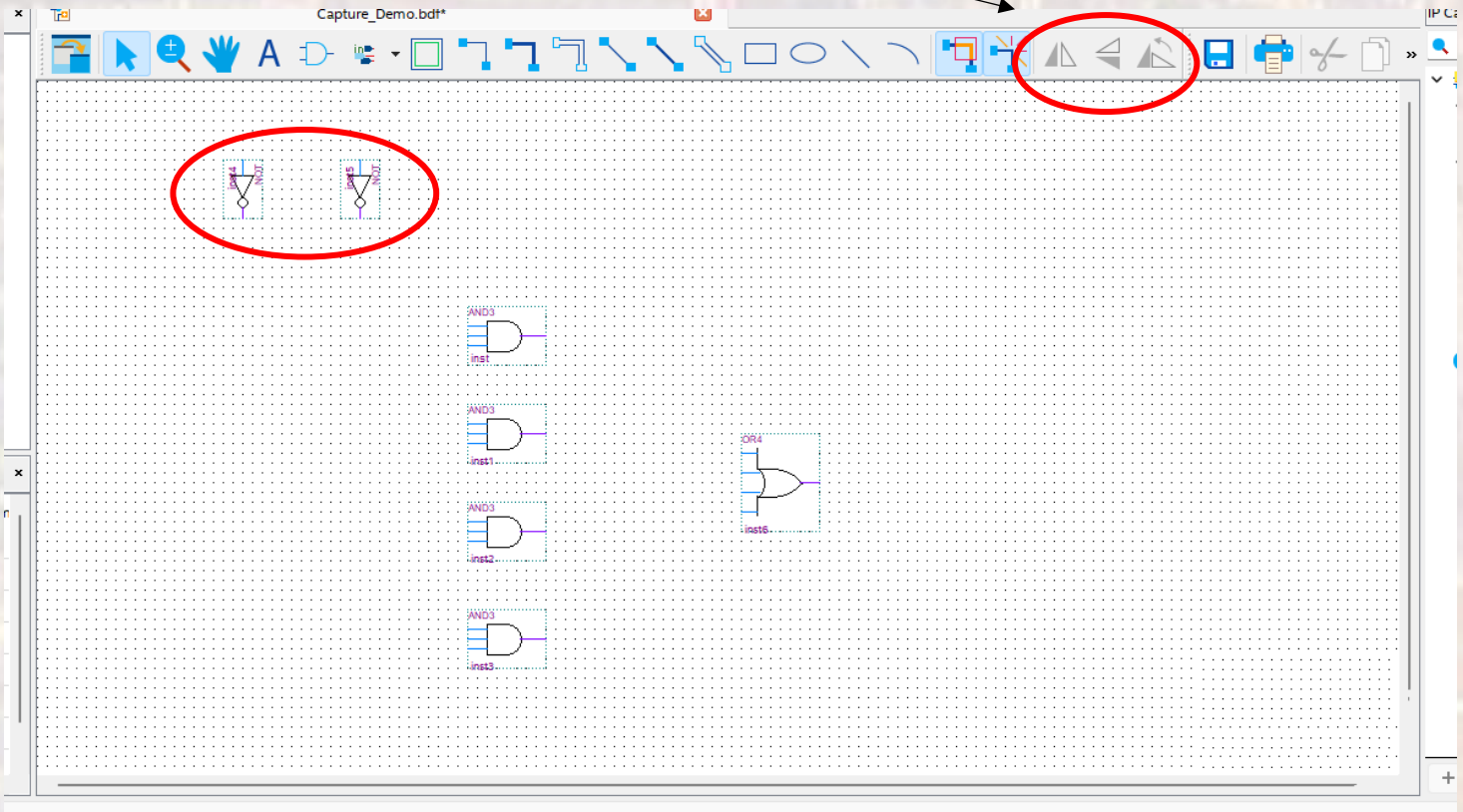
Schematic Generation

3. Place components onto the schematic
   - Continue until all components are on the schematic



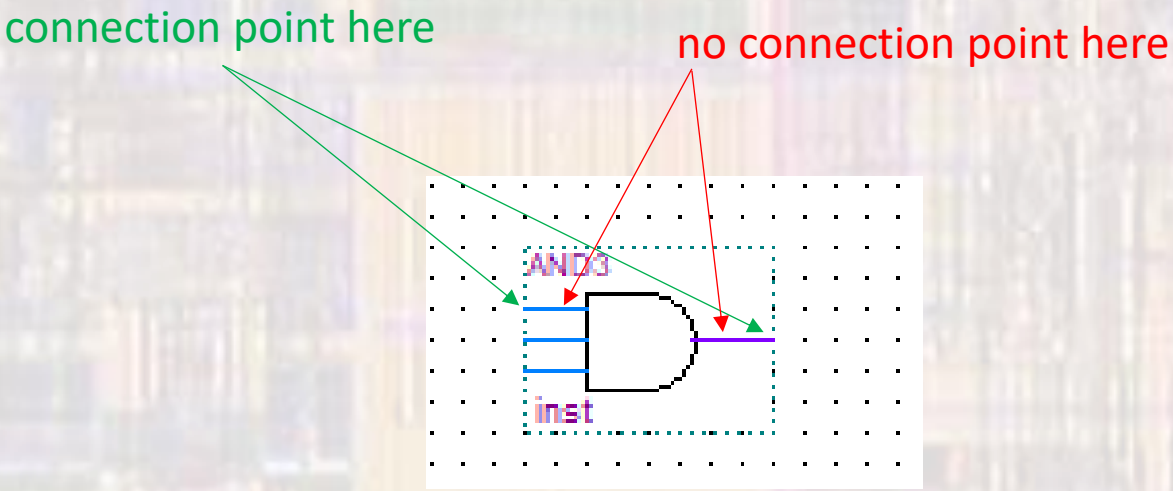
Schematic Generation

3. Place components onto the schematic
   - You can flip / rotate components
     - Tap the component
     - Select one of these 3 options



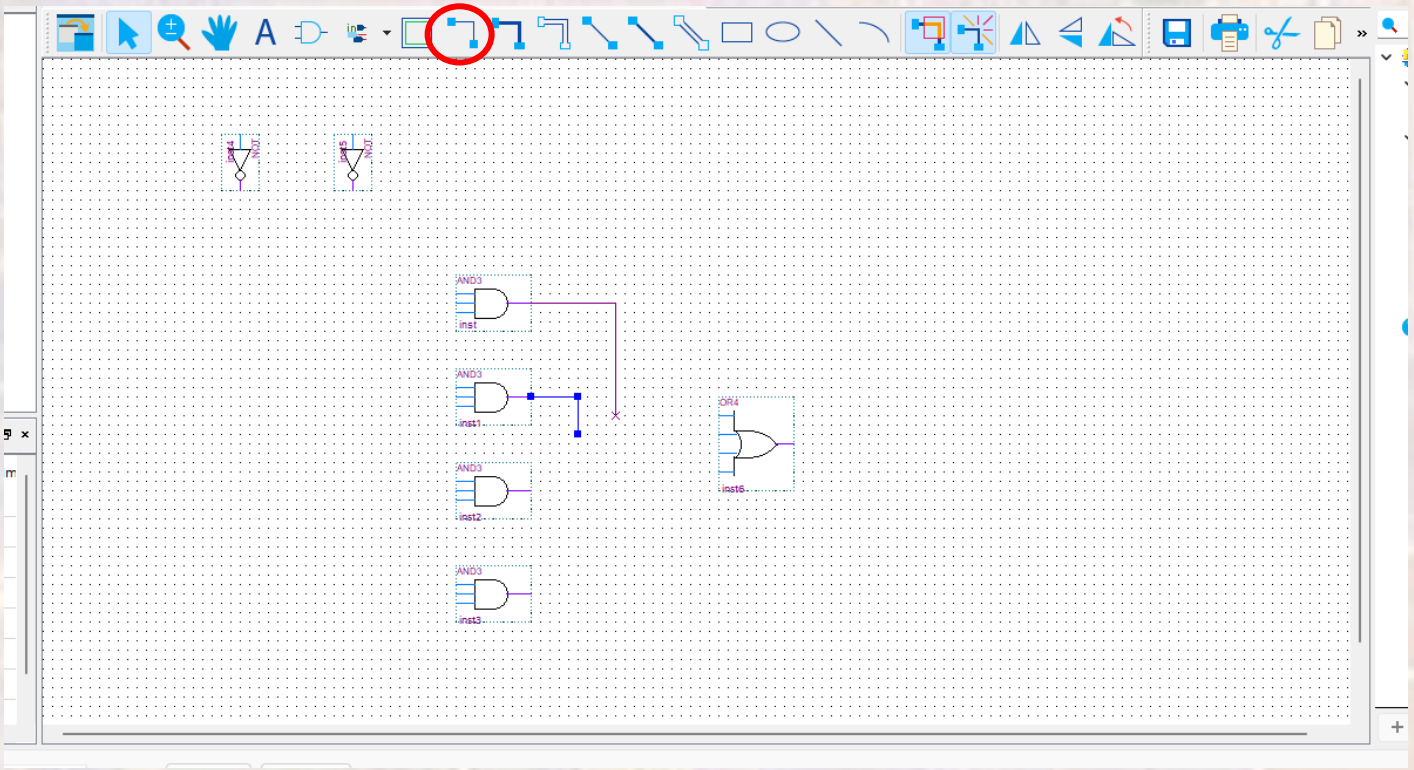
Schematic Generation

4. Wire the components together
   - Component connections are ONLY at the tips of the wires on the component



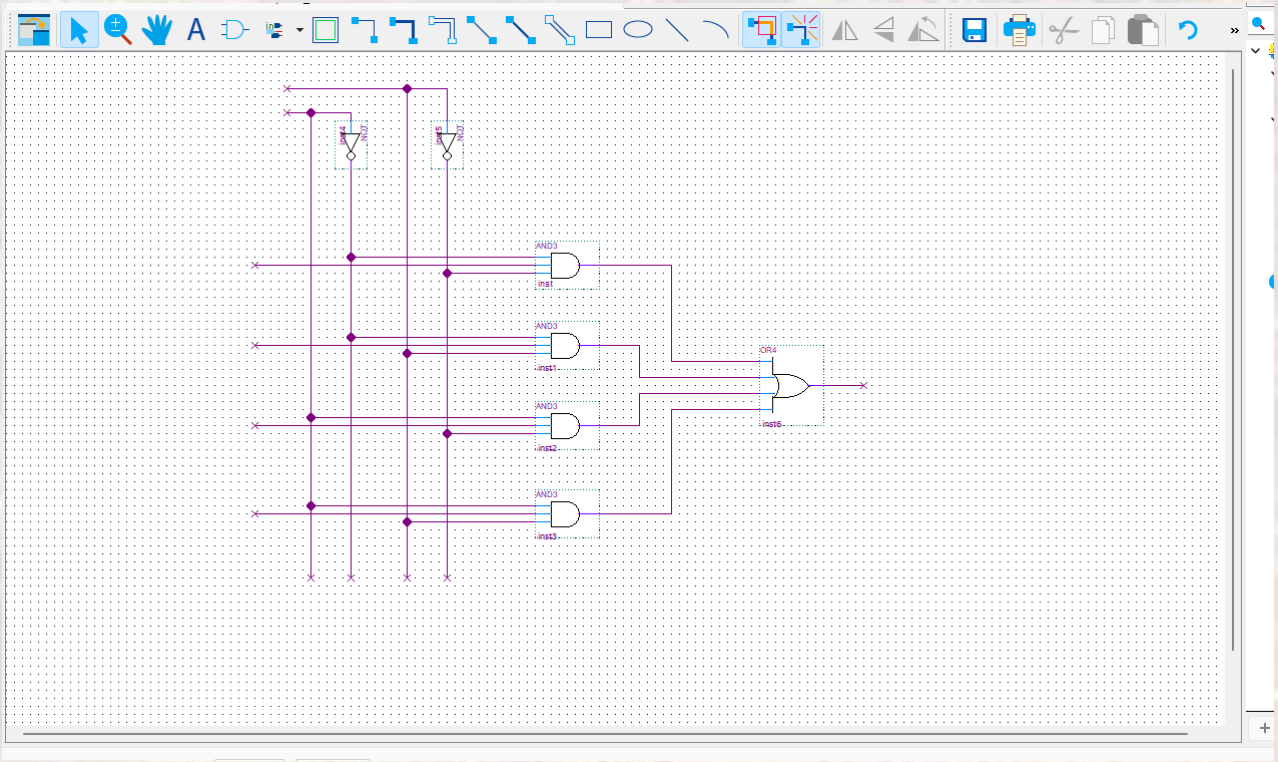
Schematic Generation

4. Wire the components together
   - Select the Orthogonal Wire Tool
   - Click at the starting location, release at the ending location



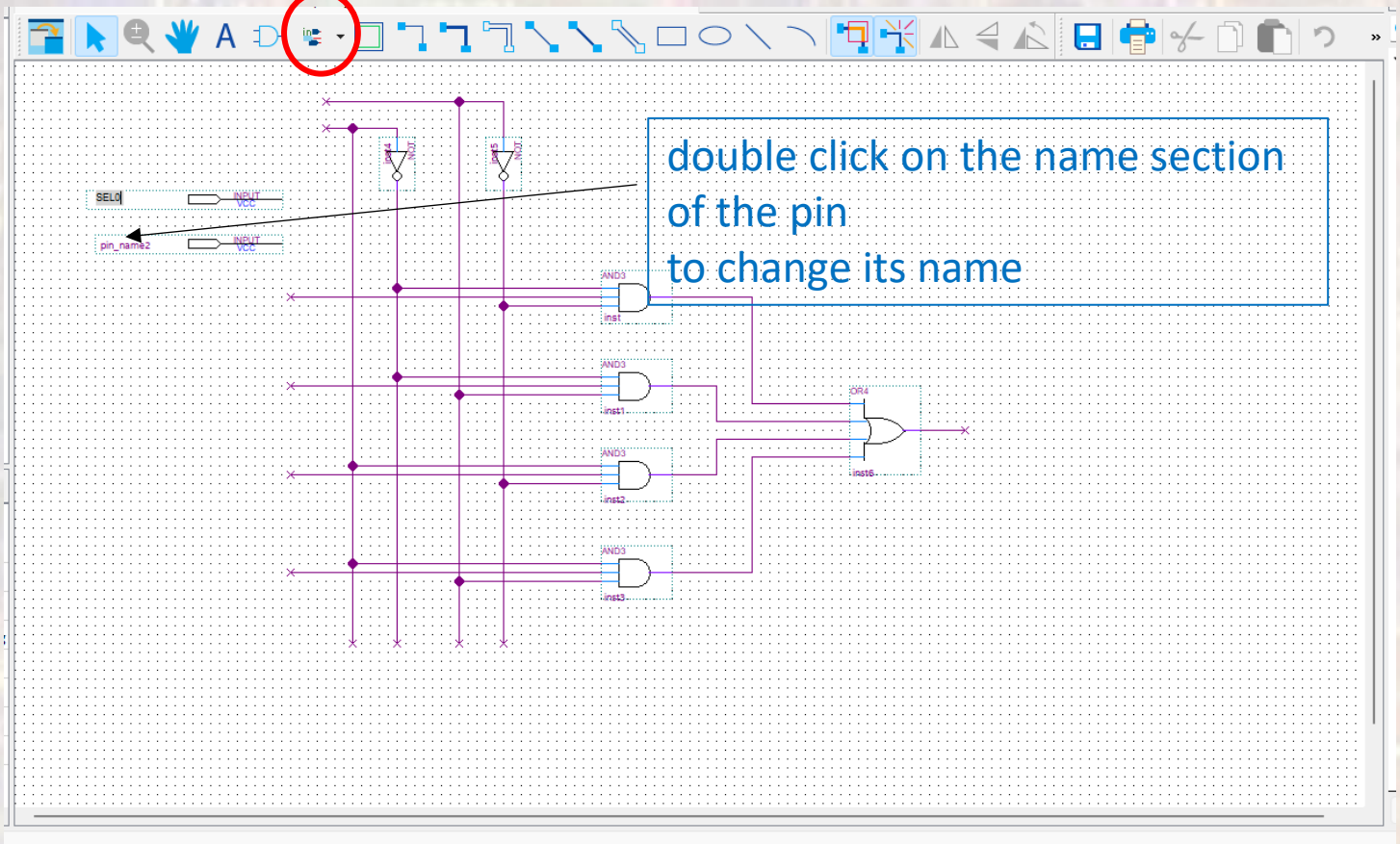
Schematic Generation

4. Wire the components together
   - Continue until all components are wired
   - Think ahead to create a nice looking and efficient schematic



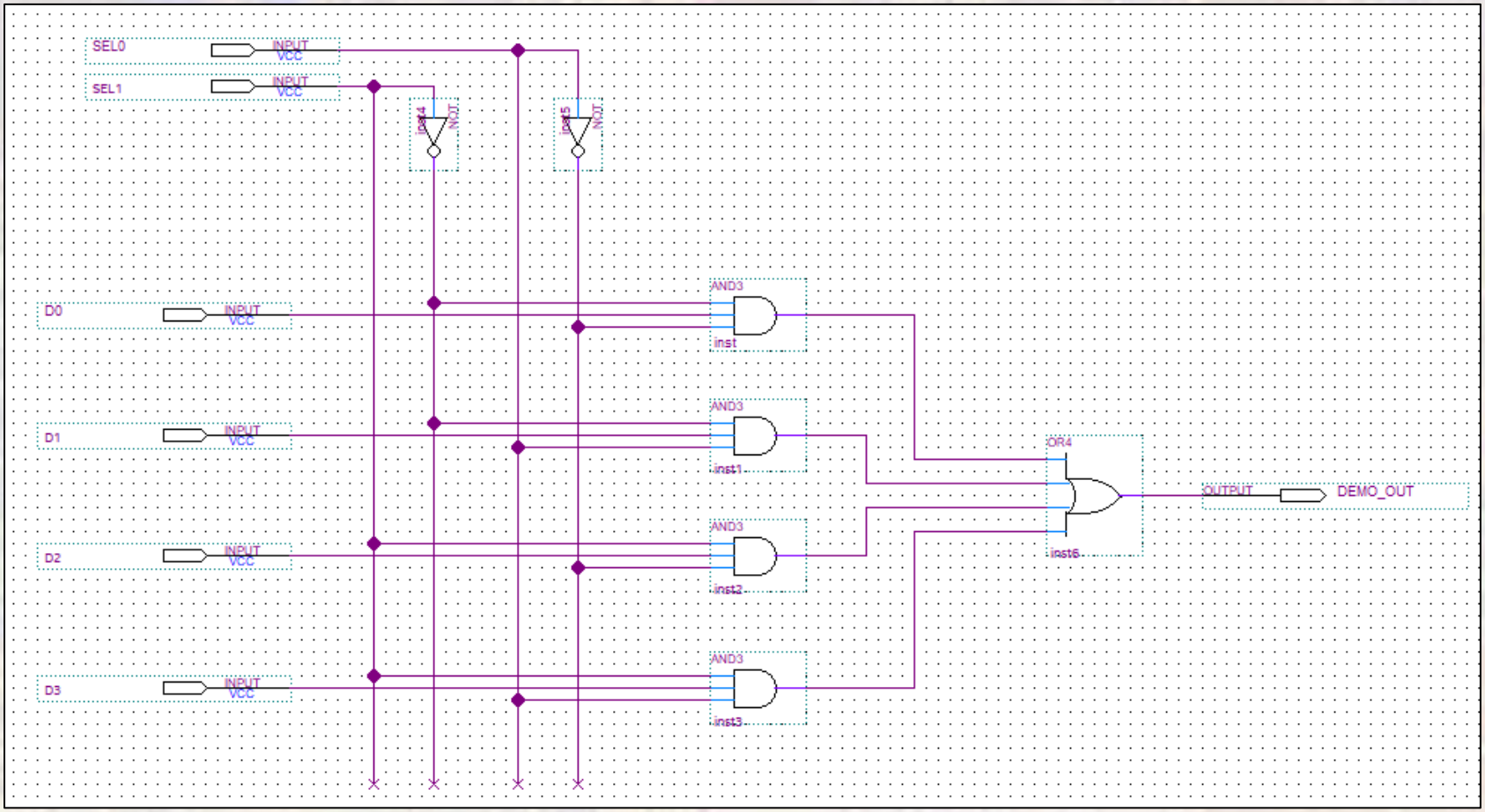
Schematic Generation

5. Add input and output pins
   - Select the Pin tool and select input/output/bidir
   - Change the name and wire up the pin



Schematic Generation

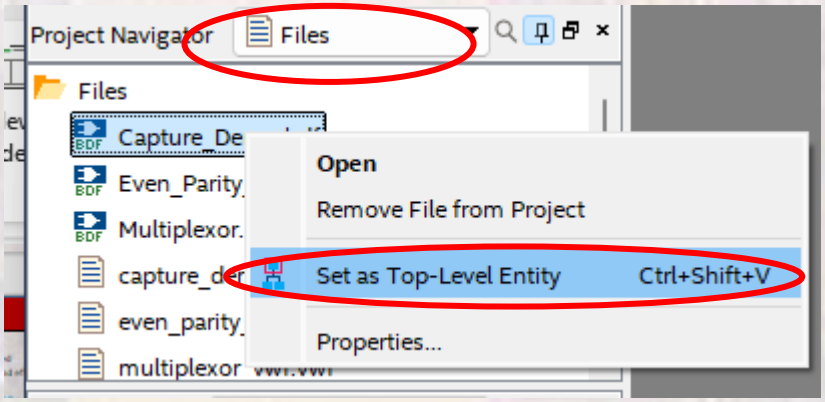
5. Add input and output pins
   - Place and wire all the pins



Schematic Generation

6. Set the Top Level Entity

- Select Files
- Rt-click on the design→ Set as Top Level Entity



Schematic Generation

7. Run Analysis to verify the connections
   - Processing → Analyze Current File