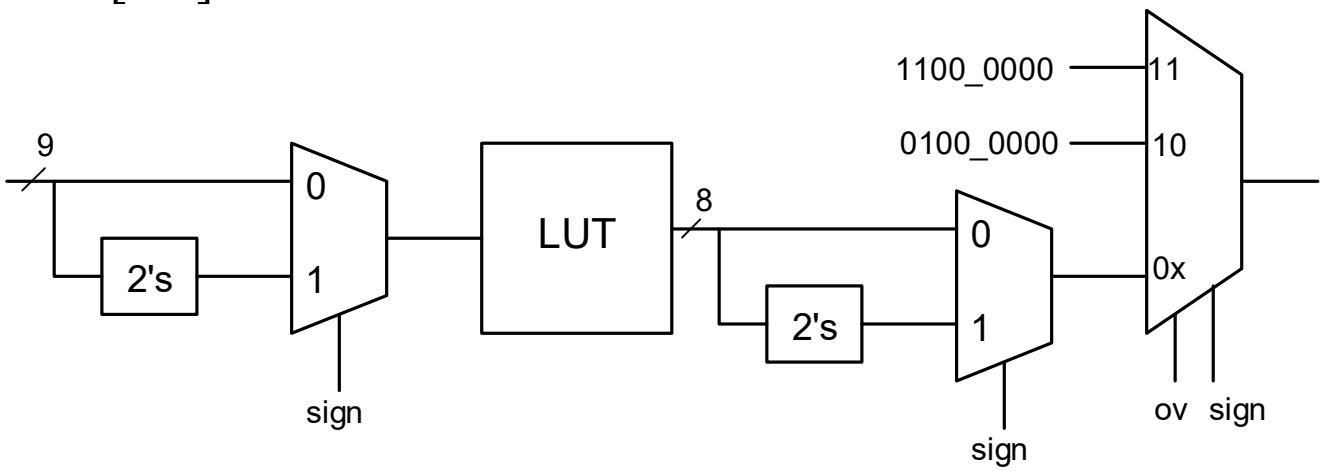
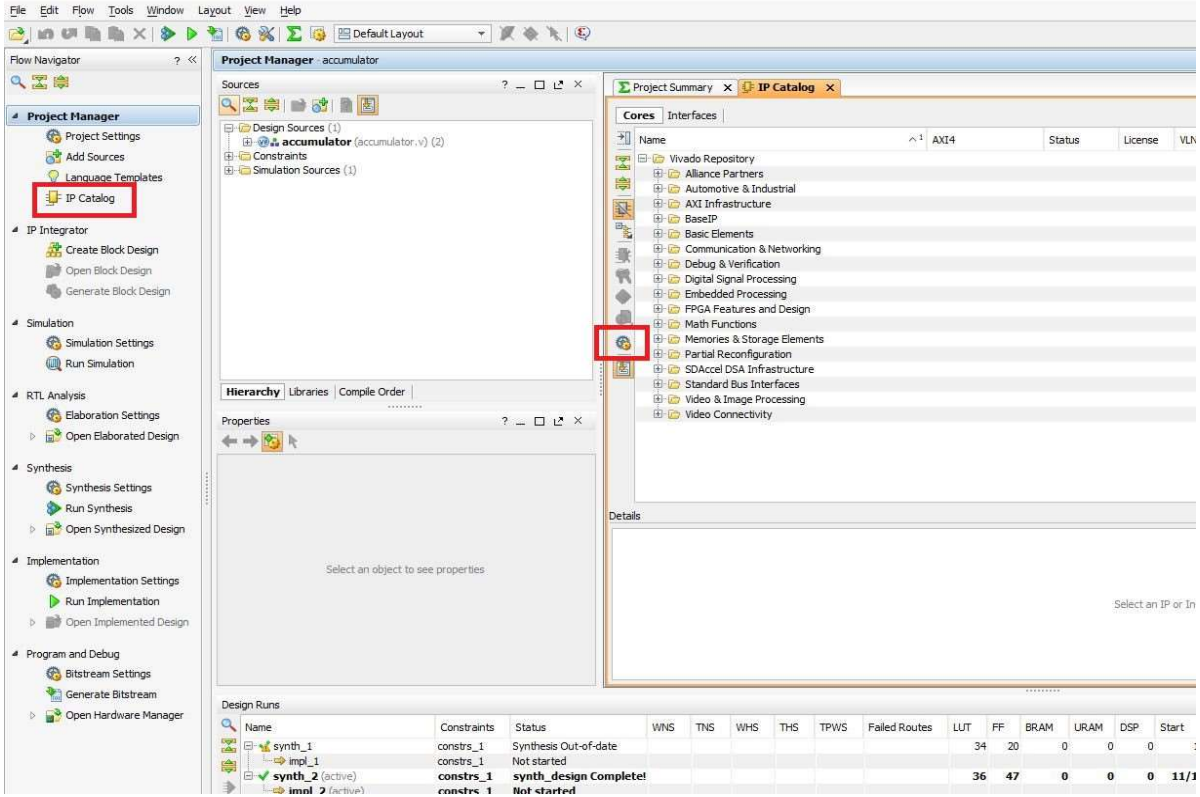
LUT based implementation of sigmoid function

- LUT has 9 bit address input: 2 integer bits and 7 fractional bits
- Only half of the sigmoid function is stored in LUT
  - Value ranges from 0 to 61 (0.4766) for input ranging from 0 to 511 (3.9922)
- Inputs of the circuit
  - sign (indicating if positive or negative input)
  - ov (indicating if the input is out of (-4, 4) range)
  - Addr [8:0]



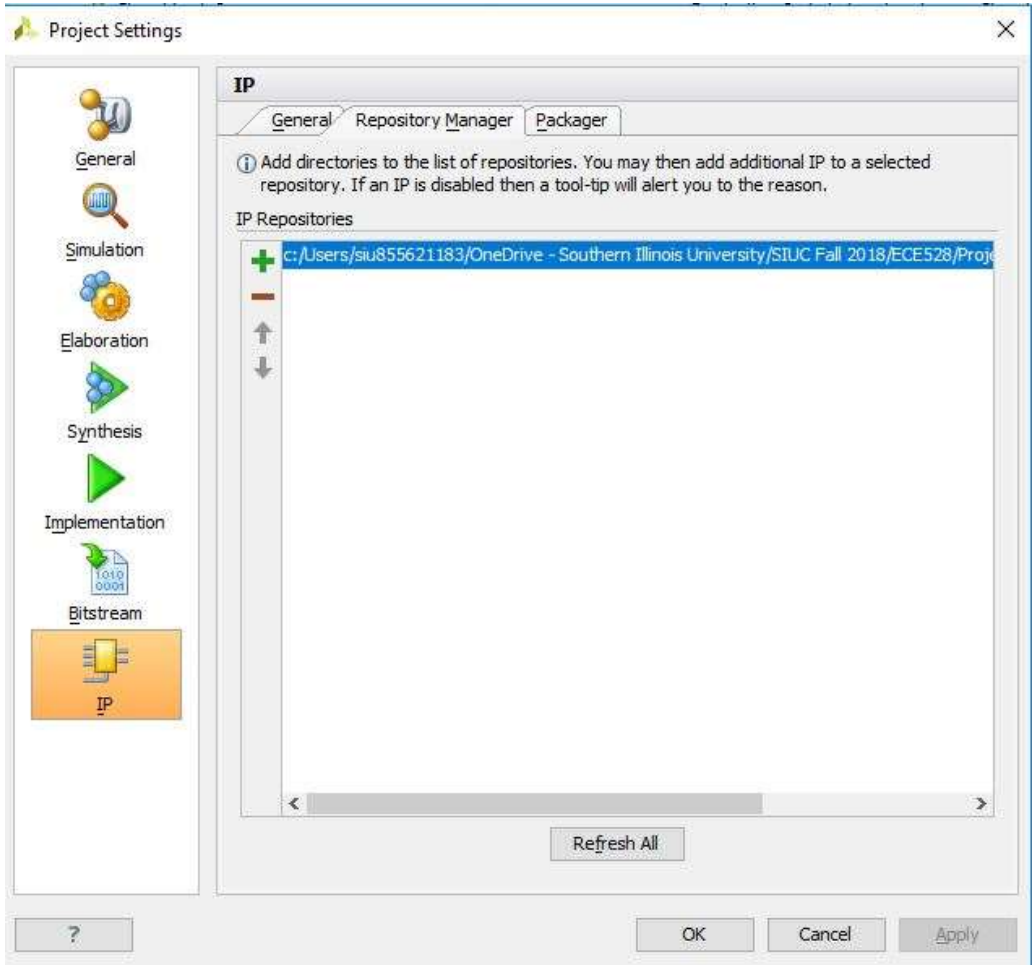
Importing Sigmoid IP

- Download **siu.edu_user_Sigmoid_1.0.zip** from D2L and extract the files into a folder
- Go to **Flow Navigator** and select **IP Catalog**
- Click **IP Setting** on **IP Catalog** window



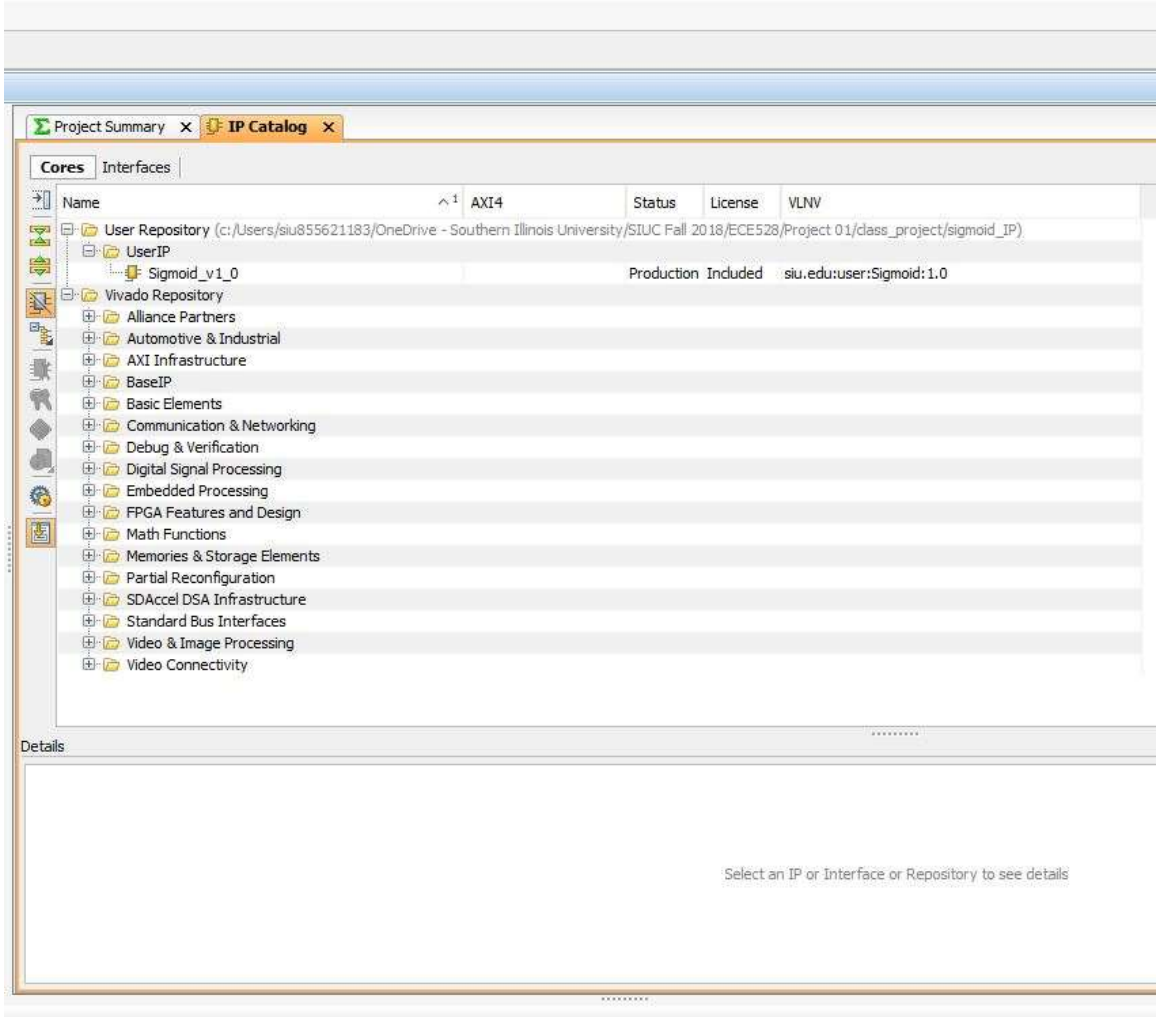
Importing Sigmoid IP

- Go to **Repository Manager** and add the folder that contains the extracted Sigmoid IP module files to IP Repositories



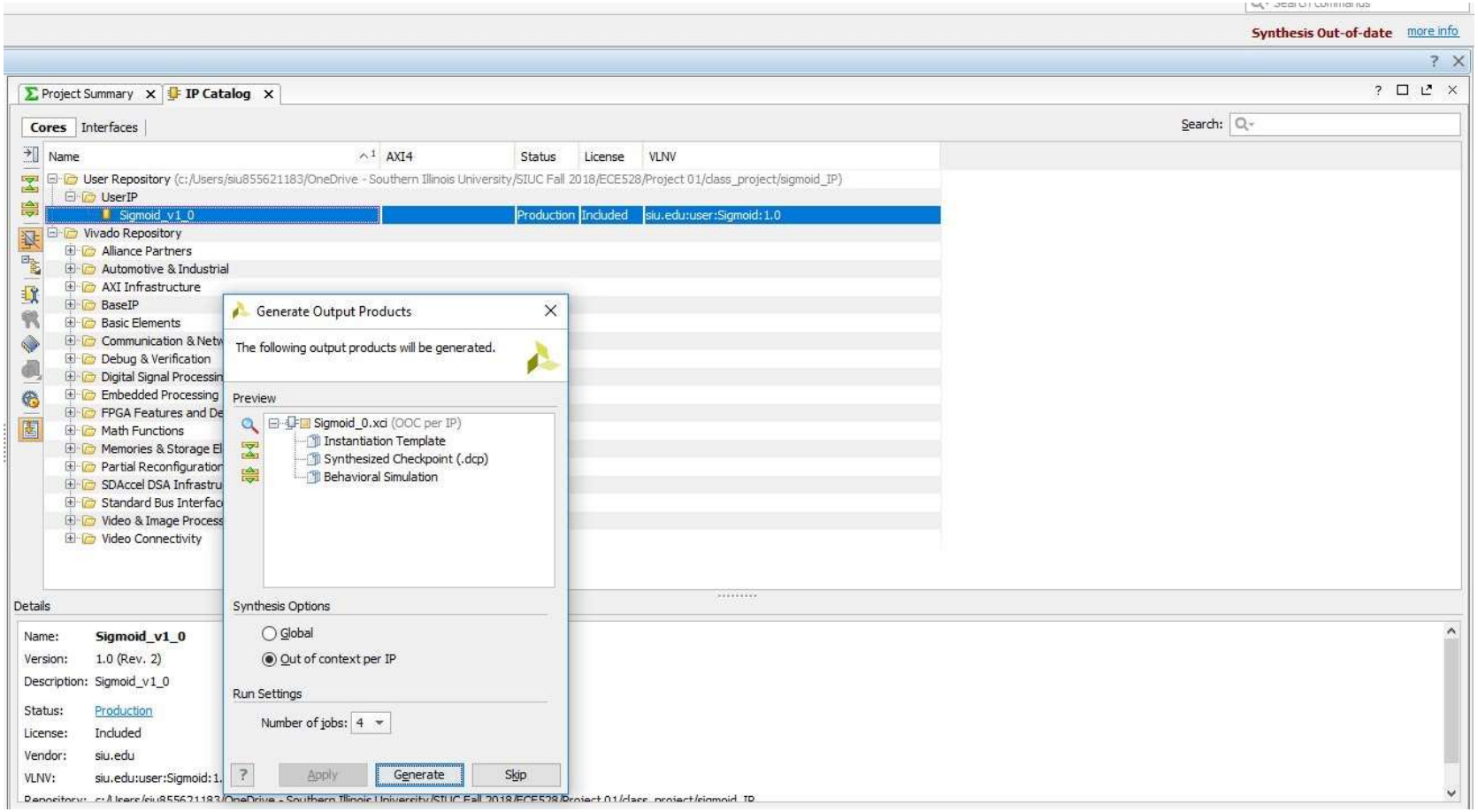
Importing Sigmoid IP

- After importing, **Sigmoid_v1_0** will be listed under **User IP** group



Importing Sigmoid IP

- Generate a **Sigmoid_v1_0 IP** with Out of Context synthesis option by double clicking the IP name



Importing Sigmoid IP

- Instantiate Sigmoid IP in project

sigmoid_0 inst01(data_in, sign, ovf, data_out);